*Service Manual for*

# DT-750 (PX-799)

# DT-766 I/O Box (PX-935)

Date: December 1996

**DT-750**

**DT-766 IOE**

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## DT-769 CHG


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## DT-720 CHG


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## *1. Specification*

**CPU** 32 bit RISC CPU

**RAM** 1M byte

**Display**

| | | | | |
|---|---|---|---|---|
| Type: | | FSTN semi-transparent LCD | | |
| Resolution: | | 96 X 48 dots | | |
| Font sizes / screen: | | | | |
| | 6 dots mode: | ANK: | 6 X 7 dots | 16 Columns X 4 Lines |
| | | Normal: | 6 X 12 dots | 16 Columns X 8 Lines |
| | | Double: | 12 X 12 dots | 8 Columns X 4 Lines |
| | 8 dots mode: | ANK: | 8 X 8 dots | 12 Columns X 6 Lines |
| | | Normal: | 8 X 16 dots | 12 Columns X 3 Lines |
| | | Double: | 16 X 16 dots | 6 Columns X 3 Lines |
| Indication character type: | | ANK, Kanji character, JIS first & second standard, 129 of Optional character | | |
| Back light: | | LED | | |
| Contrast: | | 16 phases by Electronic volume | | |

**Scanner**

| | | |
|---|---|---|
| System: | Semiconductor laser | |
| Wavelength: | Approx. 670 nm | |
| Light output: | J.I.S. Class 2 laser | |
| Scanning speed: | 100 scan/sec. | |
| Resolution: | 0.15 mm (Min.) | |
| Readable PCS: | More than 0.45 (more than 51% of reflection rate for space & margin) | |
| Readable range: | 0 to 380mm(as of 1.0 mm of the resolution ability) | |
| Readable bar code width: | Direct contact: | 55mm (max.) |
| | From 380 mm: | 210 mm (max.) |
| Activity luminance: | 3,000 Lux ~ 8,000 Lux | |
| Readable code: | WPC, NW7, CODE39, ITF, CODE93, CODE128 | |
| Confirmation: | One 2-color LED | |

**Number of keys**

26 (Including scanning triger keys)

**Interface**

| | |
|---|---|
| 3-pin interface: | 150 Kbps (between DT-750 units) |
| | 1,200 bps to 38.4 Kbps |
| Infrared interface | Casio original protocol |
| | 1,200 bps to 19.2 Kbps |

| | | |
|---|---|---|
| **Main power supply** | Rechargeable Ni-MH battery pack | |
| **Memory backup** | CR2032 battery X 1 pc | |
| **Operating duration** | Approximately 20 hours of intermittent operation | |
| **Outer dimensions** | Approximately 175(L) X 55(W) X 25.4(H) mm | |
| **Weight** | Approximately 220 g | |
| **Environmental data** | Drop durability: | 1.5 m |
| | Operating temperature: | -5 to 50 Centigrade temperature |
| | Water standard: | Conforms with IPXII |
| **Soft ware** | Basic data collection: | Casio data entry tool (for parameter setting by editor) |
| | Compiler: | SHC (Hitachi) |
| **M. T. B. F**. | Stroke key: | over 300,000 times |
| | Battery cover: | over 5,000 times |
| | Scanner: | over 5,000 hours |

## *2. Option*

**1) Cable**

***DT-581/582/583RSC-E***

**DT-581RSC-E**

**Straight cable for I/O box ( 25 pin male - 25 pin male )**

| 25 pin I/O Box | | | 25 pin Host | |
|---|---|---|---|---|
| Signal | Pin | | Pin | Signal |
| FG | 1 | ——— | 1 | FG |
| SD | 2 | ——— | 2 | SD |
| RD | 3 | ——— | 3 | RD |
| RS | 4 | ——— | 4 | RS |
| CS | 5 | ——— | 5 | CS |
| DR | 6 | ——— | 6 | DR |
| SG | 7 | ——— | 7 | SG |
| CD | 8 | ——— | 8 | CD |
| ER | 20 | ——— | 20 | ER |

**DT-582RSC-E**

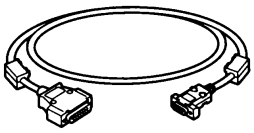
**Cross cable for I/O box ( 25 pin male - 25 pin male )**

| 25 pin I/O Box | | | 25 pin Host | |
|---|---|---|---|---|
| Signal | Pin | | Pin | Signal |
| FG | 1 | ——— | 1 | FG |
| SD | 2 | ——— | 2 | SD |
| RD | 3 | ——— | 3 | RD |
| RS | 4 | ——— | 4 | RS |
| CS | 5 | ——— | 5 | CS |
| DR | 6 | ——— | 6 | DR |
| SG | 7 | ——— | 7 | SG |
| CD | 8 | ——— | 8 | CD |
| ER | 20 | ——— | 20 | ER |

**DT-583RSC-E**
**Cross cable for I/O box ( 25 pin male - 25 pin female )**

| 25 pin I/O Box | | | 25 pin Host | |
|---|---|---|---|---|
| Signal | Pin | | Pin | Signal |
| FG | 1 | | 1 | FG |
| SD | 2 | | 2 | SD |
| RD | 3 | | 3 | RD |
| RS | 4 | | 4 | RS |
| CS | 5 | | 5 | CS |
| DR | 6 | | 6 | DR |
| SG | 7 | | 7 | SG |
| CD | 8 | | 8 | CD |
| ER | 20 | | 20 | ER |

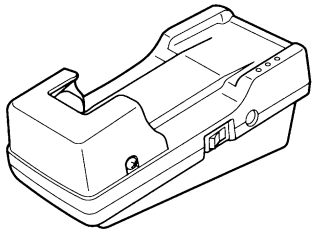
**DT-587AX-E**
**Cross cable for I/O box ( 25 pin male - 9 pin female )**



| 25 pin I/O Box | | | 9 pin Host | |
|---|---|---|---|---|
| Signal | Pin | | Pin | Signal |
| RS | 4 | | 1 | CD |
| CS | 5 | | | |
| SD | 2 | | 2 | RD |
| RD | 3 | | 3 | SD |
| DR | 6 | | 4 | ER |
| ER | 20 | | 6 | DR |
| CD | 8 | | 7 | RS |
| | | | 8 | CS |
| SG | 7 | | 5 | SG |

**2)** ***I/O Box***

**DT766IOE (I/O box with charger)**



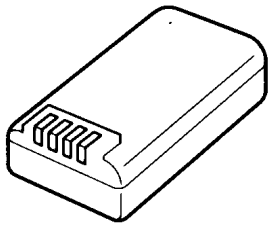
**3)** ***AC Adaaptor***

**DT-9020ADPG (AC adaptor 230V)**

**DT-9020ADPU (AC adaptor 120V)**

**4)** ***Battery Pack***

**DT-723BAT (Ni-MH battery)**



## *3. Mac operation*

Reset key

| | |
|---|---|
| In power off: | Reset flag and NMI is going to be on.<br>Initialization of Hardware. |
| In Power on: | Compulsion electric power<br>supply off This switch is covered<br>by filler. |

## *4. The detection of battery consumption*

The detection of battery consumption

| Power supply | Level | Description | Voltage | Handling of Hardware |
|---|---|---|---|---|
| Main Battery | Replacement battery voltage | LB1 | 2.1 V | IRQ6 (INT3) |
| | Operating limits voltage | LB0 | 1.6 V | NMI |
| Sub Battery | Replacement battery voltage | LB2 | 2.6 V | IRQ6 (INT3) |
| Back-up Voltage | Back-up limits voltage | LB-1 | 2.0 V | Flag reset, RTC |

Note: In LB-1 status, there is the possibility that memory and resistor could be destroyed.

## *5. Main components*

| | | | |
|---|---|---|---|
| CPU | HD6437020U01X | 32 bit RISC CPU | |
| ROM | E28F200BL-B150 | (Flash ROM) | |
| | MB838200BLPF TN-12A | (Mask ROM) | |
| RAM | HM65W8512L | PS-RAM 1M | |
| Gate array | SLA912SF3Y | | |
| LCD | FSTN semi-transparent LCD | | 96 X 48 dots |
| Scanner | VLM-1600 | Semiconductor laser | |

## *6. Rechargeable Nickel-metal Hydride Cell*

1) Characteristic:
The voltage of Nickel Metal-Hydride battery is compatible with Nickel Cadmium battery.
And, cycle property used repeatedly, large current discharge and internal resistance related flatly of the operation electrical voltage are low, and the rapid charge as well as with Nickel Cadmium battery.
There is special feature of a little less than 1.7 times electricity capacitance of Nickel Cadmium battery.

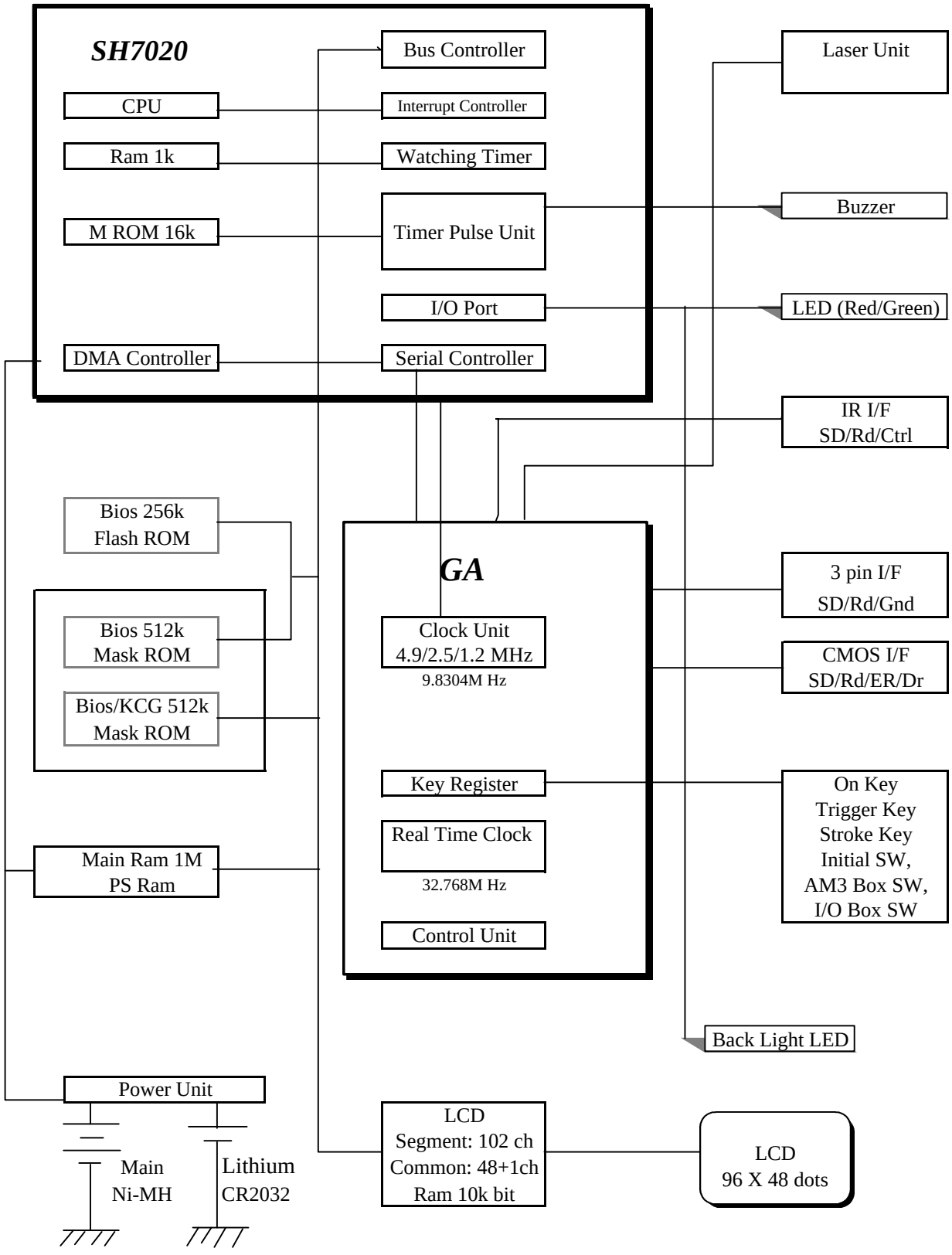
2) Specification
Normal Voltage: 2.4 V (1.2V/Cell)

3) Nominal Capacity: 1,150 mAh

4) Charge
Standard: 120 mA (15 hours)
Rapid: 1,200 mA (1.2 hours) Need Control System

5) Temperature
Charge
Standard: 0 C ~ 45 C
Rapid: 0 C ~ 40 C
Discharge: - 10 C ~ 65 C
Storage: - 20 C ~ 45 C

## *7. Block diagram*



**CPU (HD6437020U01X) Pin Description**

| No. | Signal | In/Out | Description | No. | Signal | In/Out | Description |
|---|---|---|---|---|---|---|---|
| 1 | AD0 | In/Out | Data bus | 51 | (CS4) | Out | Chip select 4 |
| 2 | AD1 | In/Out | Data bus | 52 | (RAS) | Out | Low address strobe |
| 3 | AD2 | In/Out | Data bus | 52 | (CS5) | Out | Chip select 5 |
| 4 | Vss | In | Gnd | 53 | (CS6) | Out | Chip select 6 |
| 5 | AD3 | In/Out | Data bus | 54 | (WAIT) | In | Wait |
| 6 | AD4 | In/Out | Data bus | 55 | (WR) | Out | Write |
| 7 | AD5 | In/Out | Data bus | 56 | (PA5) | Out | Gnd |
| 8 | AD6 | In/Out | Data bus | 57 | (RD) | Out | Read |
| 9 | AD7 | In/Out | Data bus | 58 | (BACK) | Out | Acknowledge of Bus right Request |
| 10 | AD8 | In/Out | Data bus | 59 | Vss | In | Gnd |
| 11 | AD9 | In/Out | Data bus | 60 | (BREQ) | In | Bus right Request |
| 12 | AD10 | In/Out | Data bus | 61 | (IRQOUT) | Out | IRQ Request |
| 13 | Vcc | In | Power | 62 | DPL | In/Out | Parity for D7 ~ D0 |
| 14 | AD11 | In/Out | Data bus | 63 | Vcc | In | Power |
| 15 | Vss | In | Gnd | 64 | DPH | In/Out | Parity for D15 ~ D8 |
| 16 | AD12 | In/Out | Data bus | 65 | (IRQ0) | In | IRQ Request |
| 17 | AD13 | In/Out | Data bus | 66 | (IRQ1) | In | IRQ Request |
| 18 | AD14 | In/Out | Data bus | 67 | (IRQ2) | In | IRQ Request |
| 19 | AD15 | In/Out | Data bus | 68 | (IRQ3) | In | IRQ Request |
| 20 | A0 | Out | Address bus | 69 | CK | Out | System clock |
| 21 | A1 | Out | Address bus | 70 | Vss | In | Gnd |
| 22 | A2 | Out | Address bus | 71 | EXTAL | In | Exterior clock |
| 23 | A3 | Out | Address bus | 72 | XTAL | In | Crystal oscillator |
| 24 | Vss | In | Gnd | 73 | Vcc | In | Power |
| 25 | A4 | Out | Address bus | 75 | (WDTOVF) | Out | Watch dog timer over flow |
| 26 | A5 | Out | Address bus | 76 | (RES) | In | Reset |
| 27 | A6 | Out | Address bus | 77 | MD0 | In | Mode |
| 28 | A7 | Out | Address bus | 78 | MD1 | In | Mode |
| 29 | A8 | Out | Address bus | 79 | MD2 | In | Mode |
| 30 | A9 | Out | Address bus | 80 | Vcc | In | Power |
| 31 | A10 | Out | Address bus | 81 | Vss | In | Gnd |
| 32 | Vss | In | Gnd | 82 | Vss | In | Gnd |
| 33 | A11 | Out | Address bus | 83 | TIOCA2 | In/Out | In/Out compare (Ch 2) |
| 34 | A12 | Out | Address bus | 84 | TCOCB2 | In/Out | In/Out compare (Ch 2) |
| 35 | A13 | Out | Address bus | 85 | TIOCA3 | In/Out | In/Out compare (Ch 3) |
| 36 | A14 | Out | Address bus | 86 | TCOCB3 | In/Out | In/Out compare (Ch 3) |
| 37 | A15 | Out | Address bus | 87 | TIOCA4 | In/Out | In/Out compare (Ch 4) |
| 38 | Vcc | In | Power | 88 | Vcc | In | Power |
| 39 | A16 | Out | Address bus | 89 | TCOCB4 | In/Out | In/Out compare (Ch 4) |
| 40 | A17 | Out | Address bus | 90 | TCLKC | In | ITU Timer clock |
| 41 | Vss | In | Gnd | 91 | TCLKD | In | ITU Timer clock |
| 42 | A18 | Out | Address bus | 92 | Vss | In | Gnd |
| 43 | A19 | Out | Address bus | 93 | RxD0 | In | Receiving data |
| 44 | A20 | Out | Address bus | 94 | TxD0 | Out | Sending data |
| 45 | A21 | Out | Address bus | 95 | RxD1 | In | Receiving data |
| 46 | (CS0) | Out | Chip select 0 | 96 | TxD1 | Out | Sending data |
| 47 | (CS1) | Out | Chip select 1 | 97 | (IRQ4) | In | IRQ Request |
| 48 | (CS2) | Out | Chip select 2 | 98 | (IRQ5) | In | IRQ Request |
| 49 | (CS3) | Out | Chip select 3 | 99 | (IRQ6) | In | IRQ Request |
| 50 | Vss | In | Gnd | 100 | (IRQ7) | In | IRQ Request |

**Gate array (SLA912SF3Y) Pin Description**

| No. | Signal | In/Out | Description | No. | Signal | In/Out | Description |
|---|---|---|---|---|---|---|---|
| 1 | A4 | In | Address bank | 65 | TEST1 | In | Test |
| 2 | A3 | In | Address bank | 66 | TEST2 | In | Test |
| 3 | A2 | In | Address bank | 67 | TEST3 | In | Test |
| 4 | A1 | In | Address bank | 68 | FSET | In | F-Set |
| 5 | A0 | In | Address bank | 69 | FVEC | In | V-Vec |
| 6 | VSS1 | In | Power | 70 | (V50ON) | Out | 50V on |
| 7 | AD7 | In/Out | Address bus | 71 | VSS1 | In | Power |
| 8 | AD6 | In/Out | Address bus | 72 | (POE1) | Out | Refresh |
| 9 | AD5 | In/Out | Address bus | 73 | (POE0) | Out | Refresh |
| 10 | AD4 | In/Out | Address bus | 74 | (PWE) | Out | Write enable |
| 11 | AD3 | In/Out | Address bus | 75 | (PCS1) | Out | Chip select |
| 12 | AD2 | In/Out | Address bus | 76 | (PCS0) | Out | Chip select |
| 13 | AD1 | In/Out | Address bus | 77 | Laser | Out | Laser |
| 14 | AD0 | In/Out | Address bus | 78 | LSRSIG | IN | L-signal |
| 15 | Vss1 | In | Power | 79 | (LZON) | Out | Laser on |
| 16 | IRQ7 | Out | IRQ request | 80 | GAIN | Out | L-gain |
| 17 | IRQ6 | Out | IRQ request | 81 | LSRTIM | In | L-timer |
| 18 | IRQ5 | Out | IRQ request | 82 | VSS1 | In | Power |
| 19 | IRQ4 | Out | IRQ request | 83 | BATSW | In | Battery switch |
| 20 | (MCS) | Out | Chip select | 84 | (PWIR) | Out | Infrared ray power |
| 21 | (RD) | In | Read | 85 | IRCTR | Out | Infrared ray control |
| 22 | (PWD) | Out | Power down | 86 | (INIT) | In | Initial |
| 23 | TRBIM | In | IBC | 87 | TRBSW | In | LIN |
| 24 | (FWE) | Out | Write enable | 88 | IOBOX | In | Hole |
| 25 | (FOE) | Out | Output enable | 89 | FRST | In | Reset |
| 26 | (CS3) | In | Chip select | 90 | KX4 | In/Out | Key common |
| 27 | (CS2) | In | Chip select | 91 | KX3 | In/Out | Key common |
| 28 | (CS1) | In | Chip select | 92 | KX2 | In/Out | Key common |
| 29 | VDD1 | In | Power | 93 | KX1 | In/Out | Key common |
| 30 | (CS0) | In | Chip select | 94 | KX0 | In/Out | Key common |
| 31 | (WAIT) | In | Waiting | 95 | VDD1 | In | Power |
| 32 | (CS6) | In | Chip select | 96 | (ONKEY) | In | On |
| 33 | (WR) | In | Write | 97 | IX10M | In | Crystal oscillator |
| 34 | IRQ0 | Out | IRQ request | 98 | OX10M | Out | Crystal oscillator |
| 35 | IRQ1 | Out | IRQ request | 99 | VSS1 | In | Power |
| 36 | IRQ2 | Out | IRQ request | 100 | (TRIG) | In | Trigger |
| 37 | IRQ3 | Out | IRQ request | 101 | KY5 | In/Out | key |
| 38 | NMI | Out | NMI request | 102 | KY4 | In/Out | key |
| 39 | (RXD1) | Out | Receiving data | 103 | KY3 | In/Out | key |
| 40 | TCLK | Out | Clock | 104 | KY2 | In/Out | key |
| 41 | VSS1 | In | Power | 105 | KY1 | In/Out | key |
| 42 | SCLK | Out | Clock | 106 | KY0 | In/Out | key |
| 43 | SCLKI | In | Clock | 107 | BLL | Out | Back light |
| 44 | (TXD1) | In | Sending data | 108 | BLR | Out | Back light |
| 45 | TCA2 | In/Out | In/Out compare (Ch 2) | 109 | (LCDWE) | Out | LCD W/E |
| 46 | (LBM1) | In | Low battery | 110 | (CRST) | Out | CPU reset |
| 47 | (V12ON) | Out | 12V on | 111 | VSS1 | In | Power |
| 48 | BATDMY | Out | Battery | 112 | A19 | In | Address |
| 49 | LLIDMY | Out | Lithium Battery | 113 | A18 | In | Address |
| 50 | (LB1) | In | Low battery 1 | 114 | A17 | In | Address |
| 51 | (LB0) | In | Low battery 0 | 115 | A16 | In | Address |
| 52 | LB2 | In | Low battery 2 | 116 | A15 | In | Address |
| 53 | (V33ON) | Out | 33V on | 117 | A14 | In | Address |
| 54 | (PWRF) | Out | Power 3P | 118 | A13 | In | Address |

| No. | Signal | In/Out | Description | No. | Signal | In/Out | Description |
|---|---|---|---|---|---|---|---|
| 55 | RFSD | Out | S-Data | 119 | TEST4 | In | Test |
| 56 | VDD1 | In | Power | 120 | A12 | In | Address |
| 57 | PRN | In | R-Data | 121 | A11 | In | Address |
| 58 | (PW3P) | Out | Power 3P | 122 | A10 | In | Address |
| 59 | 3PSD | Out | 3P S-Data | 123 | A9 | In | Address |
| 60 | 3PRD | In | 3P R-Data | 124 | A8 | In | Address |
| 61 | (FRST) | In | Reset | 125 | A7 | In | Address |
| 62 | VSS1 | In | Power | 126 | VDD1 | In | Power |
| 63 | IX32K | In | Crystal oscillator | 127 | A6 | In | Address |
| 64 | OX32K | Out | Crystal oscillator | 128 | A5 | In | Address |

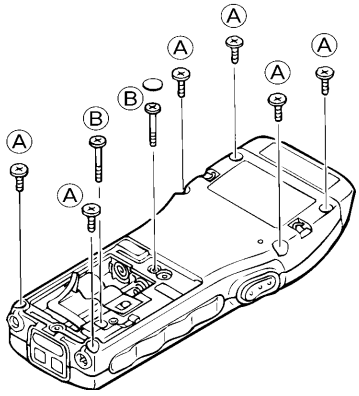
## *8. Disassembly and Assembly*

### 8-1. Disassembly and attachment of upper and lower case

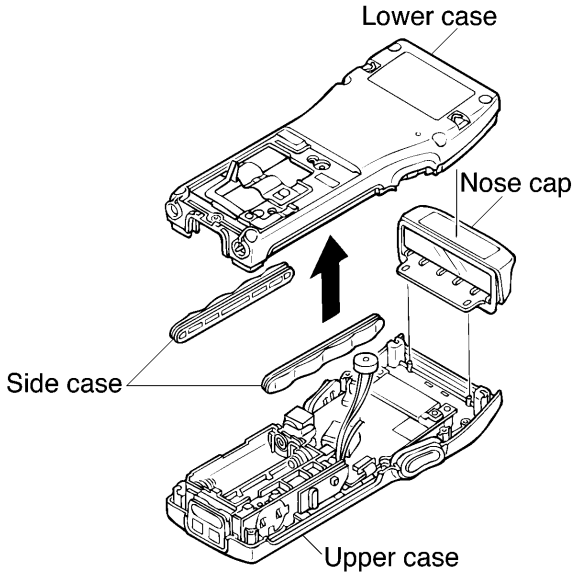
1) Remove the main batteries (SUM3 alkaline batteries x 2) and lithium battery (CR2032 x 1). (Refer to the "Instruction Manual" for the removal procedure.)

2) Remove the six screws ( Ⓐ in the diagram on the right).

3) Remove two long screws ( Ⓑ in the diagram on the right).




4) Separate the lower case from the upper case by lifting it up.
Also remove the nose cap and side cases. Remove the nose cap carefully since it may be difficult to remove as it is adhered to the upper case with double-sided adhesive tape.

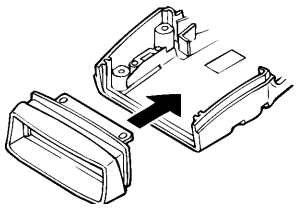


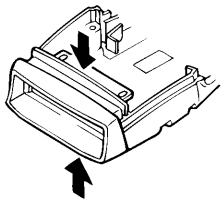

5) Assembly can be done by the reverse order of the above 1) to 4).

Nose Cap Attachment Method. First, attach the nose cap to the bottom case.

1) Fit the nose cap on the front of the lower case.

2) Push it up and down align ing the surfaces.

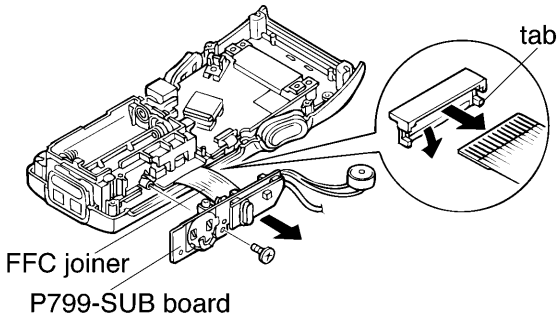




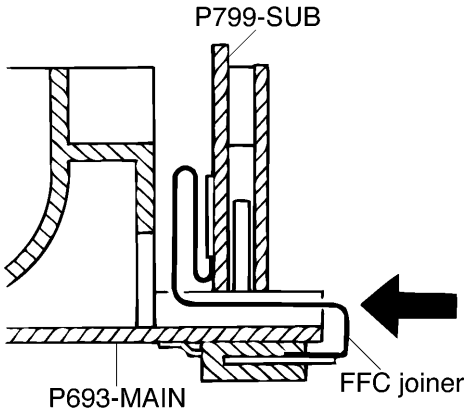
## 8-2. Attachment and removal of P799-SUB board

1) Remove the one flat screw and move the P799-SUB board in the direction of the arrow.

2) Disconnect the FFC joiner of the P799-SUB board from the connector. First, push down the connector tab with tweezers or a small screw driver and then pull out the joiner.



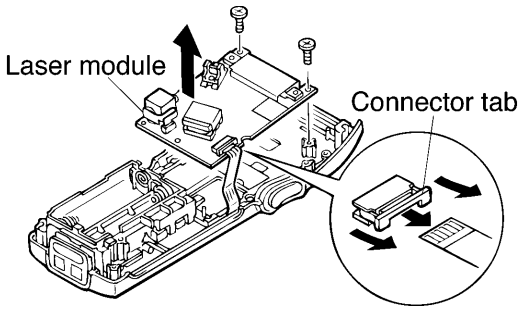

3) Attachment is performed by the reverse procedure of removal. Push in the FFC joiner into the space above the connector making sure it is not pinched between the upper and lower cases.




## 8-3. Removal and attachment of laser module

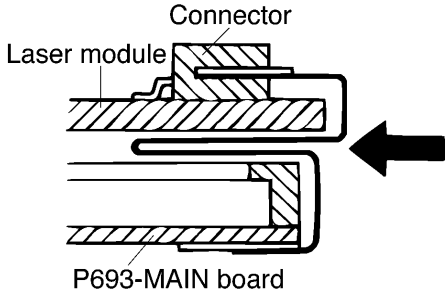
1) Remove the FFC joiner from the P693-MAIN board by detaching the connector on the laser module. First, slide the connector tab with tweezers or a small screw driver, and then pull out the joiner after loosening the tab.

2) Remove the two flat screws and then remove the laser module.



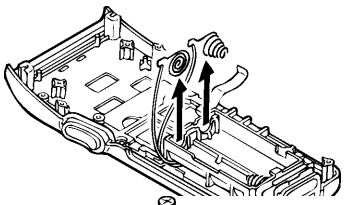

3) Attachment is performed by the reverse procedure of removal. Insert the FFC joiner into the space below the laser module making sure it is not pinched between the upper and lower cases.

* Do not touch the adjustment screw on the laser module!



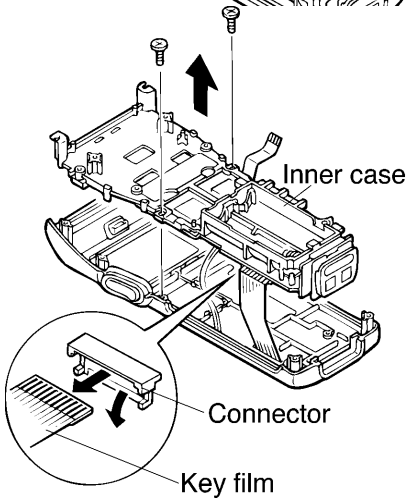
## 8-4. Removal and attachment of P693-MAIN board

1) Pull out two wire-connected battery springs.

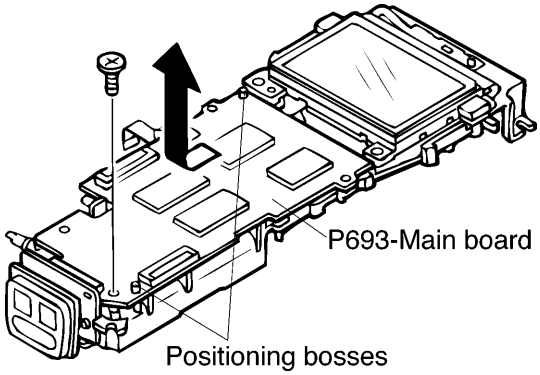


2) Remove the two flat screws and separate the inner case from the upper case together with the MAIN board and LCD. Remove the LCD carefully as it is adhered to the upper case with double-sided adhesive tape.

3) Remove the key film connected to the P693-MAIN board from the connector. The key film is removed by pulling the connector tab down.

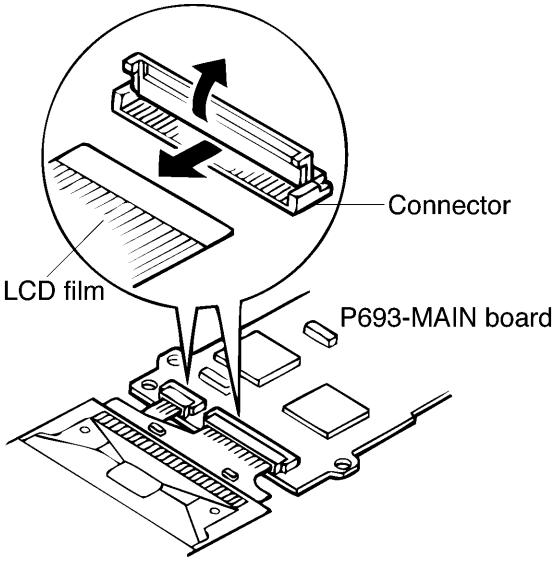



4) Remove the flat screw and lift up the P693-MAIN board.

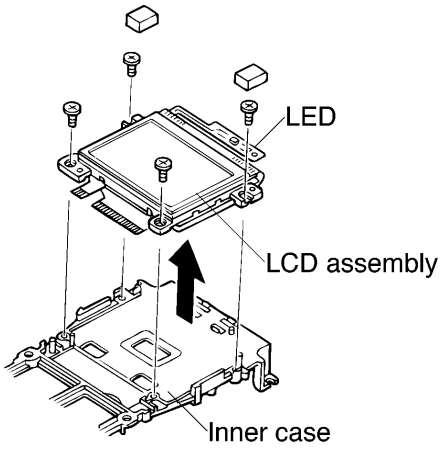



5) Remove the LCD film from the two connectors on the back of the P693-MAIN board. The LCD film is removed by opening the connector tab (dark brown portion) upward.

6) Attachment is performed by the reverse procedure of removal. When connecting the LCD film to the MAIN board connector, it is easier to separate the LCD assembly from the inner case. (Refer to section 8-5 below for the procedure for removing the LCD assembly.)



### 8-5. Removal and attachment of LCD assembly



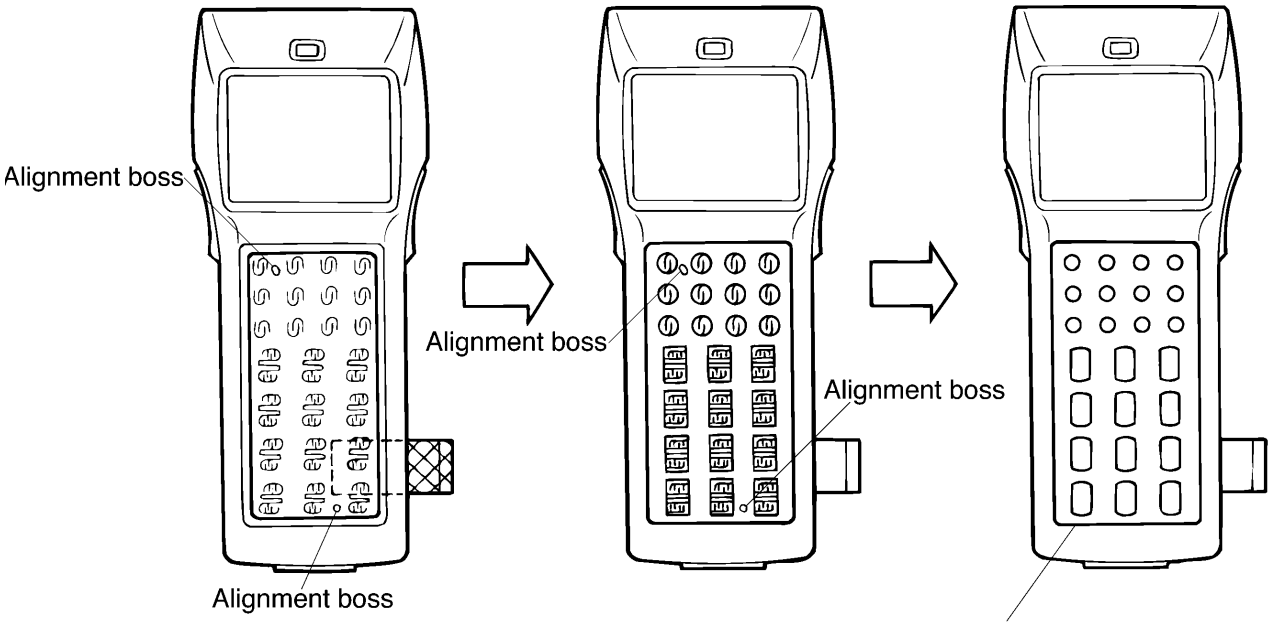

1) Remove the four flat screws and then remove the LCD assembly from the inner case.

2) Attachment is performed by the reverse procedure of removal. The film of the LED portion is securely fit into the bosses on the corners of the inner case.

### 8-6. Removal and attachment of upper case key unit

1) Since the rubber keys and key film are adhered with double-sided adhesive tape in the order shown below, remove each component by prying carefully with a small minus precision screw driver between the gaps not to damage the upper case.
[Composite Parts] Rubber keys
+
Double-sided adhesive tape (part name: W Tape RK)
+
Key film (with the adhesive side down)
+
Upper case

2) Attachment is performed by fixing the components in the order from left to right in the diagram below.




✻The key film should be attached after inserting the ⊠ portion shown in the diagram into the opening in the upper case. (The bottom of the key film is adhesive. Peeling off the back paper enables it to be affixed.)

✻Be careful so that the periphery does not ride up onto the upper case.

## *9. Diagnostic program*

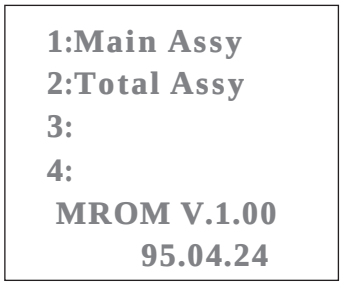
| No. | Checking Block | | Checking Time | Note |
|---|---|---|---|---|
| 1 | 21 | MAIN RAM | 00' 20" | Execute Sub Menu1: Write/Read |
| 2 | 22 | MAIN ROM | 00' 03" | |
| 3 | 23 | FLASH ROM | 00' 01" | |
| 4 | 24 | CLOCK | 00' 08" | |
| 5 | 25 | KEYS | 00' 03" | |
| 6 | 26 | LCD | 00' 16" | |
| 7 | 31 | LEDs | 00' 02" | |
| 8 | 33 | LB1 | 00' 02" | For factory inspection only |
| 9 | 34 | LB0 | 00' 02" | For factory inspection only |
| 10 | 35 | LB1 | 00' 07" | For factory inspection only |
| 11 | 36 | LB2 | 00' 08" | For factory inspection only |
| 12 | 41 | BATTERY SWITCH | 00' 14" | No switch |
| 13 | 42 | I/O BOX SWITCH | 00' 04" | For factory inspection only |
| 14 | 43 | PRINTER SWITCH | 00' 02" | For factory inspection only |
| 15 | 44 | INIT SWITCH | 00' 40" | |
| 16 | 45 | BUZZER | 00' 11" | |
| 17 | 51 | 3 PIN | 00' 11" | |
| 18 | 52 | IR | 00' 11" | For factory inspection only |
| 19 | 53 | RF | 00' 02" | For factory inspection only<br>Executes Sub Menu RF i/F |
| 20 | 54 | LASER | 00' 02" | For factory inspection only<br>Executes Sub Menu Laser i/F |
| 21 | 55 | E_CURRENT | 00' 02" | For factory inspection only |
| 22 | 56 | GIJI | 00' 02" | For factory inspection only |
| 23 | | BACKLIGHT | 00' 02" | |
| 24 | | HARD RESET | 00' 02" | For factory inspection only |
| 25 | | MEMORY BACKUP CURRENT | 00' 02" | For factory inspection only |

## General Operation

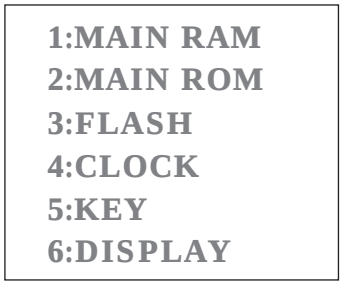
| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Initial setting | Connect the power unit, checking jig, or necessary devices defined in each program. | |
| 2 | Starting test program | Apply the power and press the POWER button. | Unit emits a buzz and ON Status screen appears on the display. |
| | | Press ENTER button.<br>* Refer to page 18 "To Start the Test Program". | Menu 1 screen appears on the display |
| 3 | Changing the menu screen | Press "F3" to advance the menu screen. To turn back the menu page, press "F2".<br>* Refer to page 18 for the menu screens. | |
| 4 | Starting the test program | Select the program number on the menu screen.<br>Follow guidances or messages which may be shown on the display. | |
| 5 | Contrast adjustment | F6 button: Contrast down<br>F7 button: Contrast up | |
| 6 | When programs come to the end without an error..... | To proceed to other tests, repeat the above operations 3 and 4. | The unit resumes the starting menu screen on the display. |
| 7 | When an error occurs... | Press "CLEAR" button. | The unit emits a buzz and the display shows an error code.<br>* Refer to the error code message on page 35.<br>The display resumes the menu screen. |

## Menu Screens

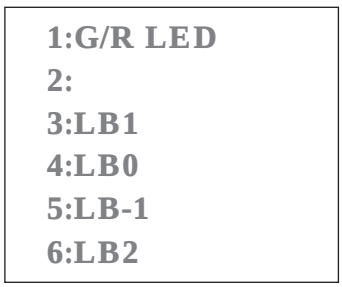
Menu Screen 1



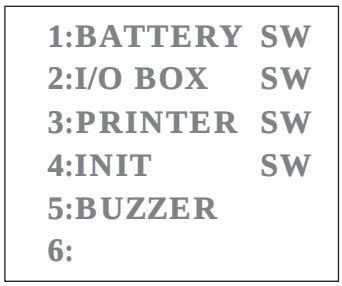

Menu Screen 2



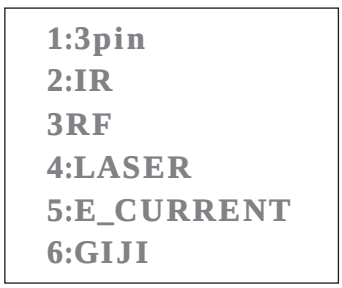

Menu Screen 3



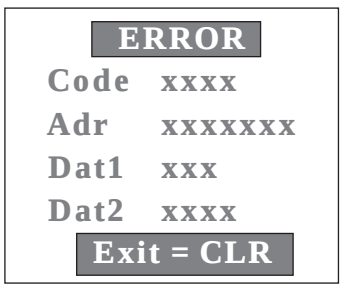

Menu Screen 4




Menu Screen 5




Error Screen




## To Start the Diagnostic Program

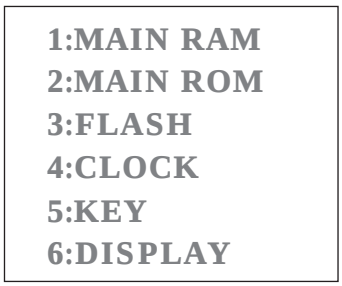
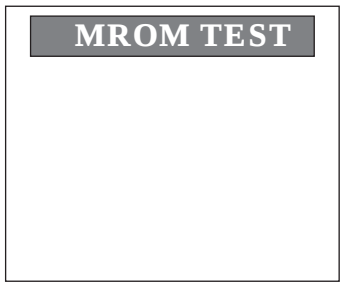
1. If the OS (Operating System) is unloaded in the unit;
   (1) Press "POWER" button.
   (2) Hold down the "INIT" switch ( about 3 seconds ) until a menu screen appears on the display.

2. If the OS is loaded in the unit;
   While holding down the "9" button, keep pressing the "INIT" switch (about 3 seconds) until a menu screen appears on the display.

**Program: MAIN RAM**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F3" or "F2" button to indicate Menu 2 screen on the display. | Menu 2 screen<br>1:MAIN RAM<br>2:MAIN ROM<br>3:FLASH<br>4:CLOCK<br>5:KEY<br>6:DISPLAY |
| | | Press "1" button. | The following display appears on the display<br>PS-RAM TEST<br>1:Write/Read<br>2:Write<br>3:Read<br>4:Backup WR<br>5:Backup CHK |
| | | Press "1" button.<br>While writing data in the RAM, display indicates "W".<br>When the writing procedure is terminated properly, 16 "W"s will be indicated. | The following display is shown on the display.<br>PS-RAM TEST<br>Write<br>RAM-1MB<br>WWWWWWWW<br>WWWWWWWW |
| | | While reading data from the RAM, "W" on the screen changes to "R".<br>When reading is completed properly, 16 "R"s will be indicated. | PS-RAM TEST<br>Read<br>RAM-1MB<br>RRRWWWWW<br>WWWWWWWW |
| | | When MAIN RAM check comes to the end, the dsiplay shown on the right appears. | PS-RAM TEST<br>1:Write/Read<br>2:Write<br>3:Read<br>4:Backup WR<br>5:Backup CHK |
| | | Press the "ENTER" button | Spec program monitor screen appears on the display. |

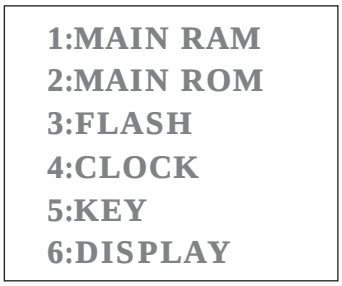
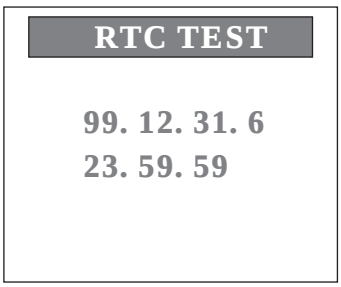
**Program: MAIN ROM**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 2 screen on the display. | Menu 2 screen<br>  |
| | | Press "2" button. | The following screen appears on the display.<br>  |
| | | | Spec program monitor screen appears on the display when the checking is done properly. |

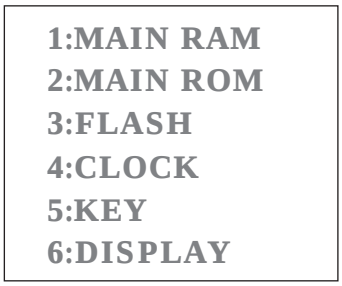
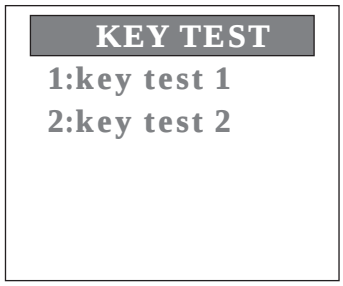
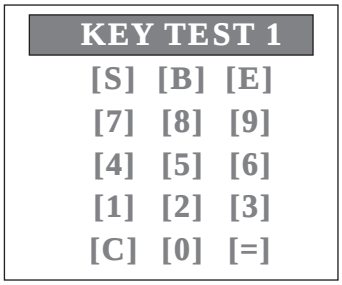
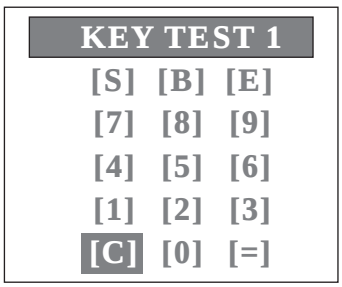
**Program: FLASH**

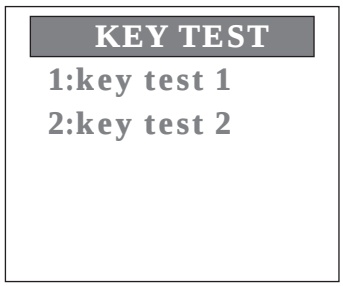
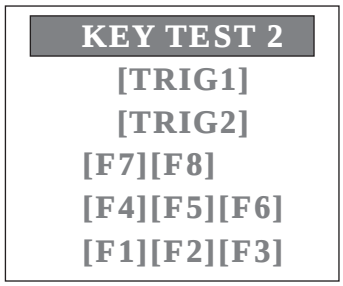
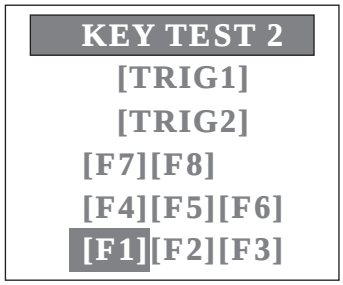
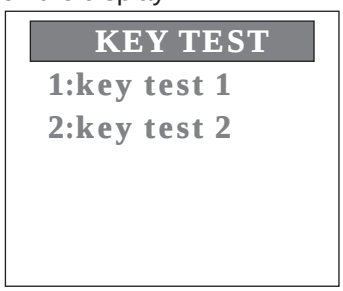
| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 2 screen on the display. | Menu 2 screen<br>1:MAIN RAM<br>2:MAIN ROM<br>3:FLASH<br>4:CLOCK<br>5:KEY<br>6:DISPLAY |
| | | Press "3" button. | The following screens appears on the display.<br>(1) When Flash ROM is erased |
| | | The unit verifies the program without erase operation. | FROM TEST |
| | | | (2) When Flash ROM is not erased |
| | | An "E" appears on the display one by one and, when six Es are displayed, the unit erase the data and verifies the program. | FROM TEST<br>Erase<br>EEEEEE |
| | | | Spec program monitor screen appears on the display when the checking is done properly. |

**Program: CLOCK**

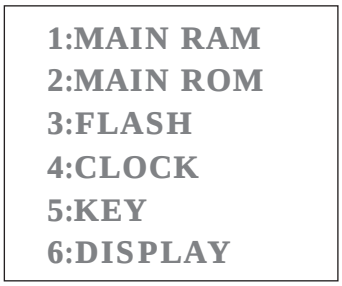
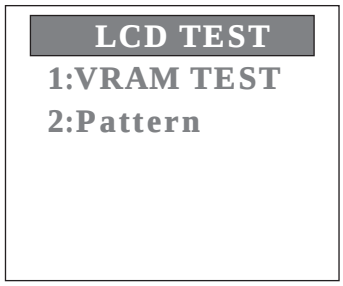
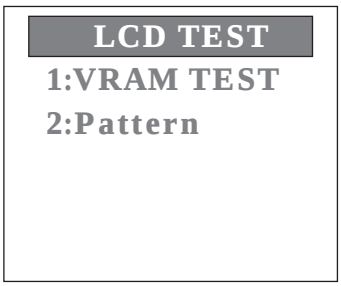
| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 2 screen on the display. | Menu 2 screen<br>  |
| | | Press "4" button.<br><br>Make sure that the displayed numbers are counted up. | The following screens appears on the display.<br>  |
| | | | Spec program monitor screen appears on the display when the checking is done properly. |

**Program: KEY TEST**

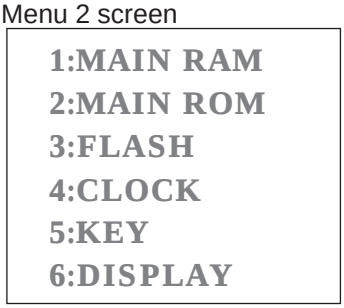
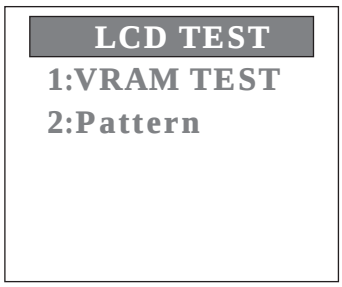
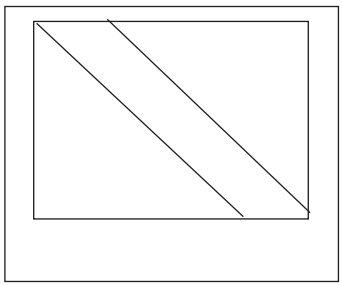
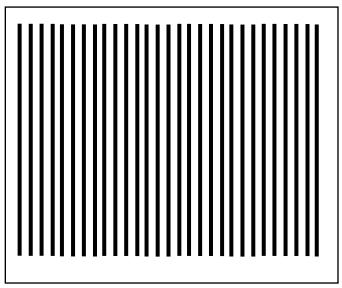
| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 2 screen on the display. | Menu 2 screen<br>  |
| | | Press "5" button. | The following screen appears on the display.<br>  |
| | | Press "1" button. | The following screen appears on the display<br>  |
| | | Confirm that the button indicator on the display becomes reversal when corresponding button is pressed. |  |

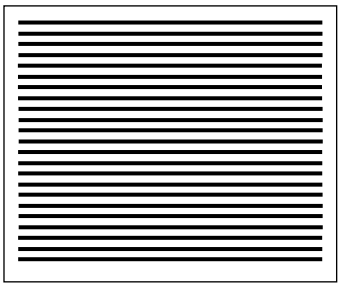
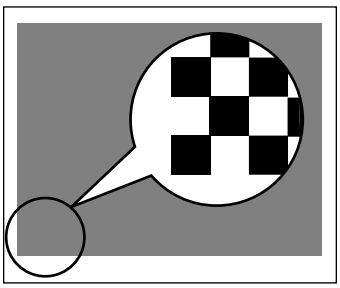
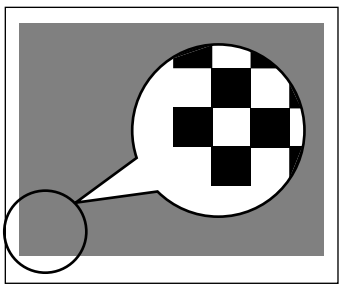
| No. | Subject | Operation | Result |
|---|---|---|---|
| | | After all the displayed buttons on the KEY TEST 1 screen are pressed.... | The following screen appears on the screen.<br>  |
| | | Press "2" button.<br>Confirm that the button indicator on the display is reversed when corresponding button is pressed.<br>Press both ends of TRIG button. | The following screen appears on the display.<br>  <br>  |
| | | After all the displayed buttons on the KEY TEST 2 screen are pressed.... | The following screen appears on the display<br>  |
| | | Press the "ENTER" button. | Spec program monitor screen appears on the display when the checking is done properly. |
| | Notes | Press each button one ata time as the program cannot check simultaneous button entry check.<br><br>During the key test, do not turn the power off. Doing so causes the menu screen unchangeable. | If more than 2 buttons are pressed simultaneously, exit the key test program and retry it.<br><br>When a menu screen cannot be changed, extract main and sub batteries and leave the unit for more than 30 seconds then retry the diagnostic program. |

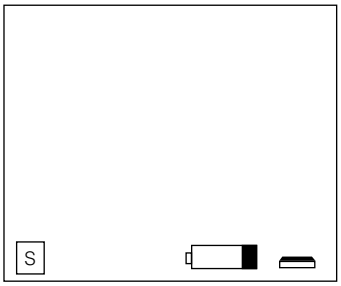
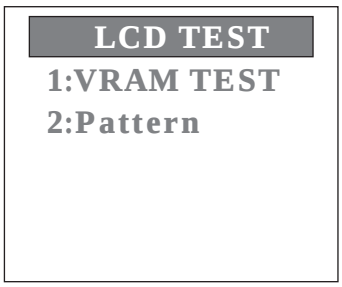
**Program: VRAM TEST**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 2 screen on the display. | Menu 2 screen<br>  |
| | | Press "6" button. | The following screen appears on the display.<br>  |
| | | Press "1" button.<br>(During the test, an irregular display appears on the display.) | |
| | | | Teh following screen appears on the screen.<br>  |
| | | Press the "ENTER" button. | Spec program monitor screen appears on the display when the checking is done properly. |

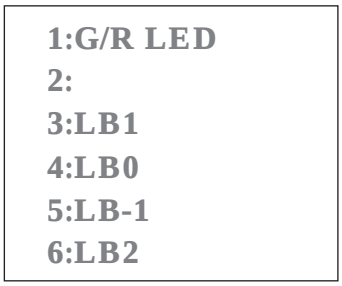
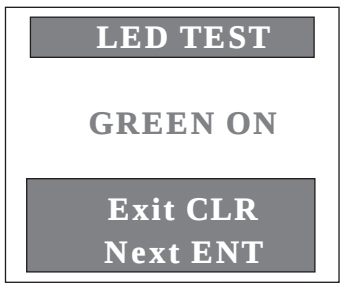
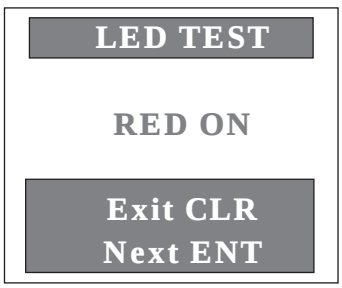
**Program: PATTERN TEST**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 2 screen on the display. | Menu 2 screen<br>  |
| | | Press "6" button. | LCD TEST menu appears on the display.<br>  |
| | | Press "2" button. | Frame and oblique lines will be shown on the display.<br>  |
| | | Press the "ENTER" button. | Vertical lines appear on the display.<br>  |

| No. | Subject | Operation | Result |
|---|---|---|---|
| | | Press "ENTER" button. | Holizontal lines appear on the display.<br>  |
| | | Press "ENTER" button. | The following screen appears on the display.<br>  |
| | | Press "ENTER" button. | Teh following screen appears on the screen.<br>  |
| | | Press "ENTER" button. | The following screen appears on the display.<br> |

| No. | Subject | Operation | Result |
|---|---|---|---|
| | | Press "ENTER" button. | The following screen appears on the screen.<br>  |
| | | Press "ENTER" button. | The following screen appears on the display.<br>  |
| | | Press "ENTER" button. | Spec program monitor screen appears on the display when the checking is done properly. |

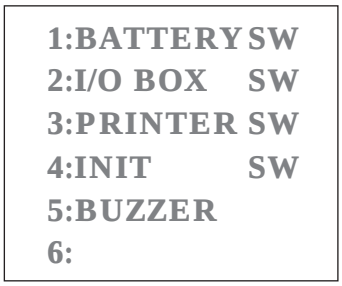
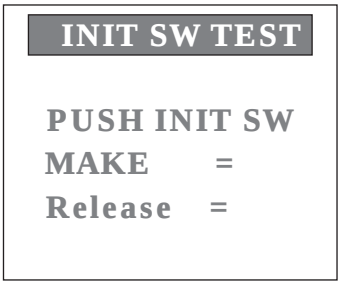
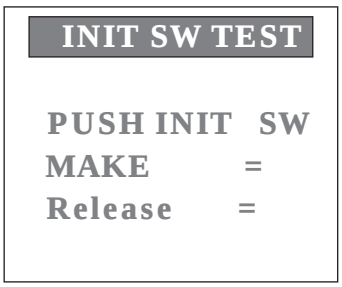
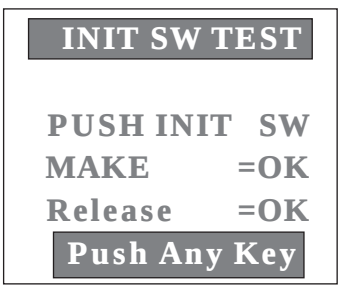
**Program: G/R LED**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 3 screen on the display. | Menu 3 screen<br>  |
| | | Press "1" button. | The following screen appears on the display and green LED lights.<br>  |
| | | Press "ENTER" button.<br>Each press of "ENTER" button turns the LED color green ➟ red ➟ green. | The following screen appears on the display and red LED lights.<br>  |
| | | Press "CLEAR" button. | Spec program monitor screen appears on the display when the checking is done properly. |

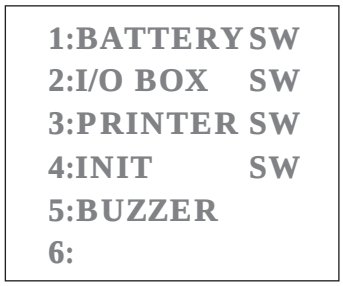
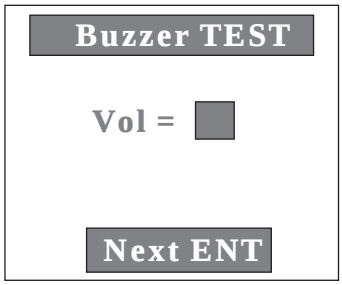
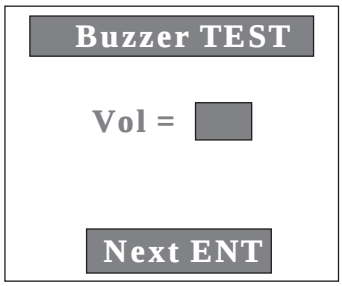
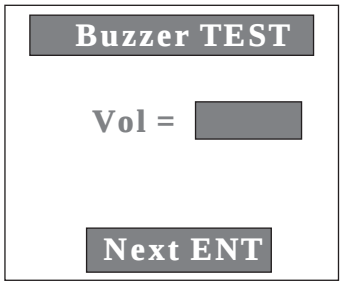
**Program: BATTERY SWITCH**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 4 screen on the display. | Menu 4 screen<br>1:BATTERY SW<br>2:I/O BOX SW<br>3:PRINTER SW<br>4:INIT SW<br>5:BUZZER<br>6: |
| | | Press "1" button. | The following screen appears on the display.<br>BATT SW TEST<br>Push Batt SW<br>MAKE =<br>Release = |
| | | Turn SW2 located on the Sub PCB i/F jig on. | The following screen appears on the display.<br>Batt SW TEST<br>Push Batt SW<br>MAKE =OK<br>Release = |
| | | Turn SW2 off. | The flollowing screen appears on the display.<br>Batt SW TEST<br>Push Batt SW<br>MAKE =OK<br>Release =OK<br>Push Any Key |
| | | Press "ENTER" button. | Spec program monitor screen appears on the display when the checking is done properly. |

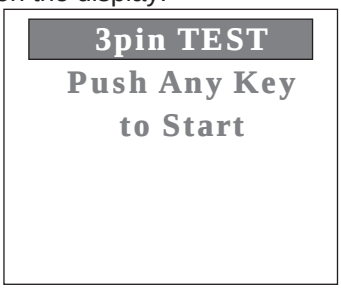
**Program: INIT SWITCH**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 4 screen on the display. | Menu 4 screen<br>  |
| | | Press "4" button. | The following screen appears on the display.<br>  |
| | | Turn SW3 located on the Sub PCB i/F jig on. | The following screen appears on the display.<br>  |
| | | Turn SW2 off. | The flollowing screen appears on the display.<br>  |
| | | Press "ENTER" button. | Spec program monitor screen appears on the display when the checking is done properly. |

**Program: BUZZER**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 4 screen on the display. | Menu 4 screen<br>  |
| | | Press "5" button. | The following screen appears on the display and small buzz sounds.<br>  |
| | | Press "ENTER" button. | The following screen appears on the display and middle volume of buzz sounds.<br>  |
| | | Perss "ENTER" button. | The flollowing screen appears on the display and large volume of buzz sounds.<br>  |
| | | Press "ENTER" button. | Spec program monitor screen appears on the display when the checking is done properly. |

**Program: 3pin**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate the Menu 5 screen on the display. | Menu 5 screen<br> |
| | | Press "1" button. | The following screen appears on the display.<br>  |
| | | Insert loop back connector. | |
| | | Perss "ENTER" button. | The unit executes 3pin loop back test and spec program monitor screen appears on the display when the checking is done properly. |
| | | Disconnect the loop back connector. | |

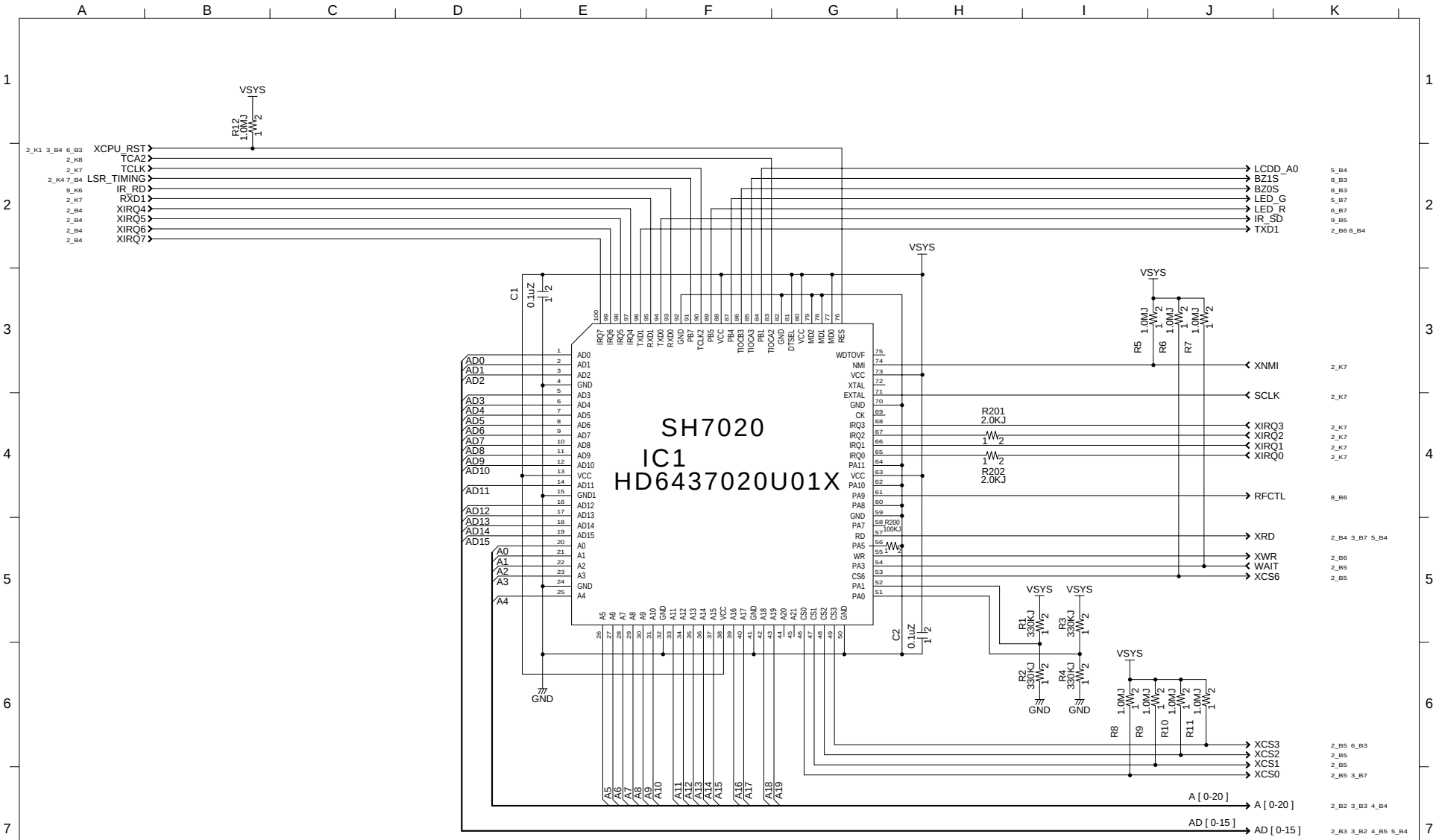
**Program: BACKLIGHT**

| No. | Subject | Operation | Result |
|---|---|---|---|
| 1 | Function check | Use "F2" or "F3" buttons to indicate any menu screen on the display. | |
| | | Press "F8" button once. | The backlight turns on. |
| | | Press "F8" button once.<br>Each press of "F8" button turns the backlight on and off. | The backlight turns off. |

## Error Code

| Subject | Error Code | Error | Sub Code 1 | Sub Code 2 | Sub Code 3 |
|---|---|---|---|---|---|
| | 0201 | No occurance of GAITU interruption | – | – | – |
| | 0301 | No TCLK input | – | – | – |
| RAM | 1101 | The status and the memory capacity do not conform. | – | Status value | Tested value |
| | 1102 | Read data do not conform to the written data. | Address | Expected value | Read value |
| | 1110 | Data backup error | Address | Expected value | Read value |
| MROM | 1201 | Read value does not conform to the calculated check sum. | – | Expected value | Read value |
| FROM | 1301 | Ready Timeout when erasing or writing data | Block address | – | – |
| | 1302 | Erase error | Block address | FROM status | – |
| | 1303 | Write error | Block address | FROM status | – |
| | 1304 | Abnormal program voltage | Block address | FROM status | – |
| | 1310 | Multiple error among 1302 ~ 1304 | Block address | FROM status | – |
| | 1320 | Read data do not conform to the written data. | Address | Expected value | Read value |
| RTC | 1401 | RTC interruption timeout | – | – | – |
| KEY | 1501 | Key interruption timeout | – | – | – |
| VRAM | 1601 | Read data do not conform to the written data. | Address | Expected value | Read value |
| INIT | 3401 | Cannot detect the inactive level | – | – | – |
| | 3402 | Time out as it does not become the active level. | – | – | – |
| | 3403 | Does not resume the inactive level. | – | – | – |
| 3pin | 4101 | TxRDY timeout | – | – | – |
| | 4102 | Receive data timeout | – | – | – |
| | 4103 | Overrun error | – | SCI status | – |
| | 4104 | Framing error | – | SCI status | – |
| | 4105 | Parity error | – | SCI status | – |
| | 4106 | Multiple error among 4103 ~ 4105 | – | SCI status | – |
| | 4107 | Send data and Receive data do not conform. | – | Send data | Receive data |

## *10. Circuit diagram*




NOTE: Resistor which has non-mark is type 1005.
Capacitor which has non-mark is type 1608.

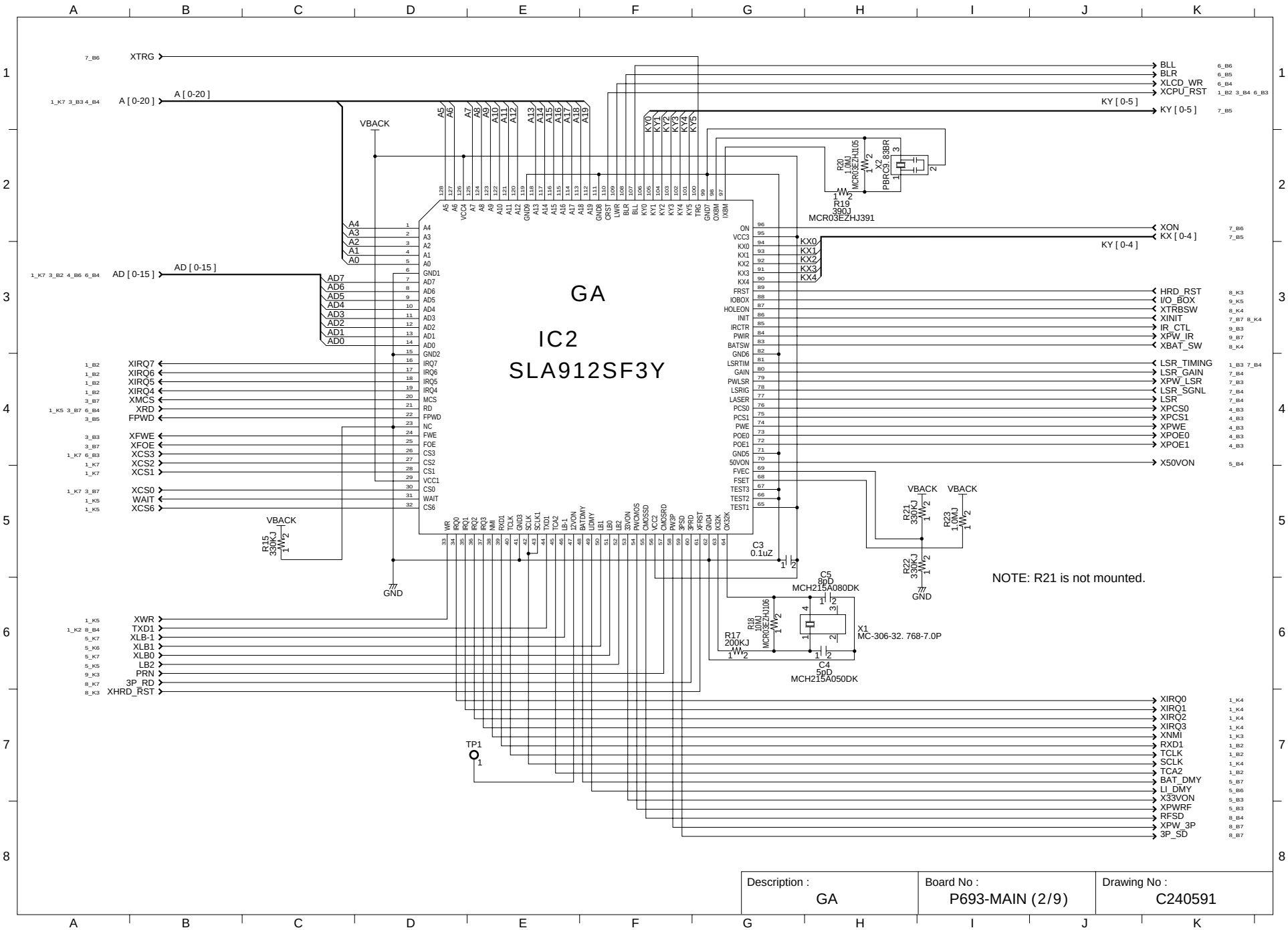
✻ Caution when mounting R1 and R2.

| MODEL | R1 | R2 |
|---|---|---|
| PX-693 | × | ○ |
| ——— | ○ | × |

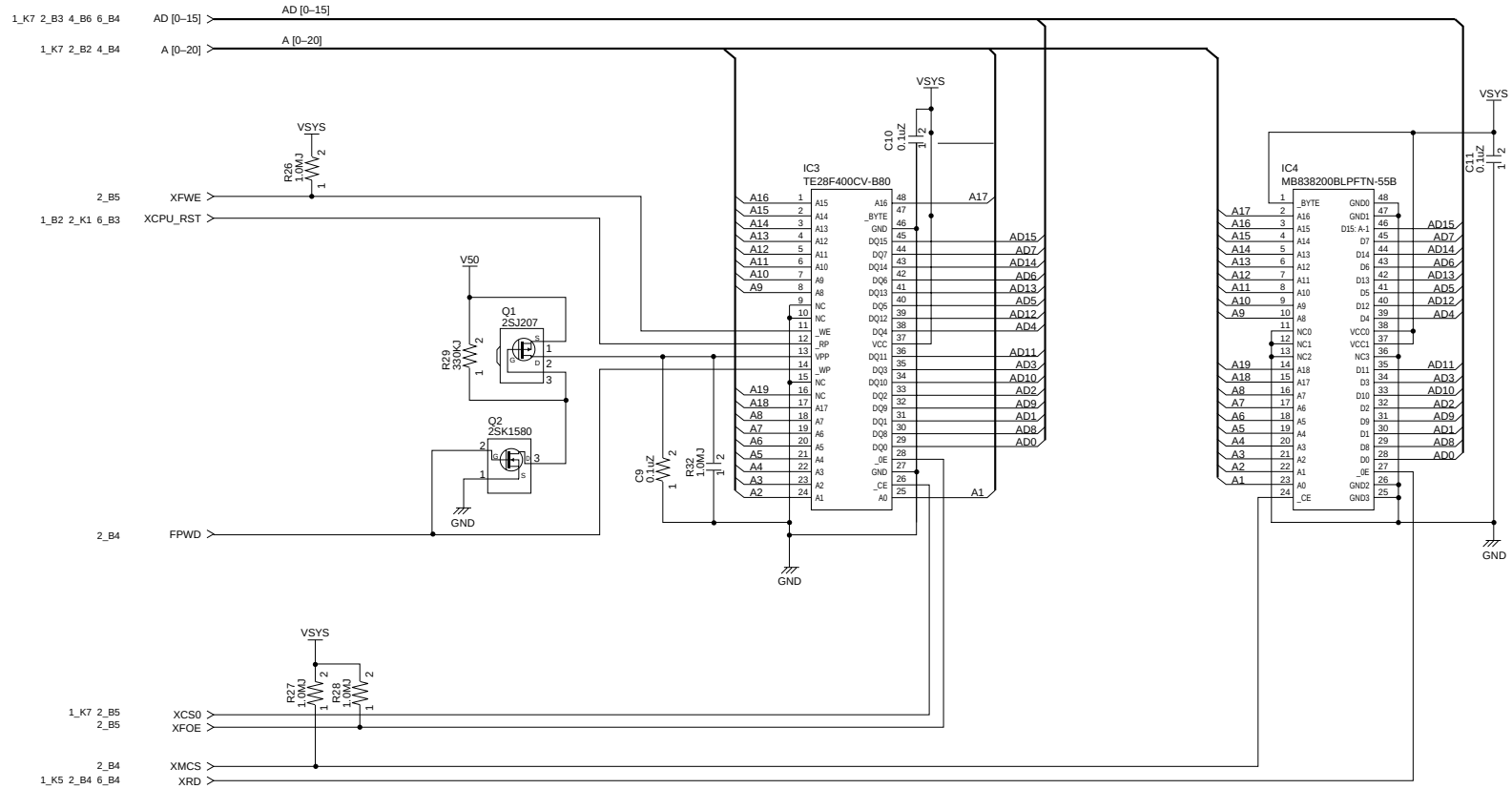
✻ Caution when mounting R3 and R4.

| MODEL | R3 | R4 |
|---|---|---|
| ——— | × | ○ |
| PX-693AA | ○ | × |

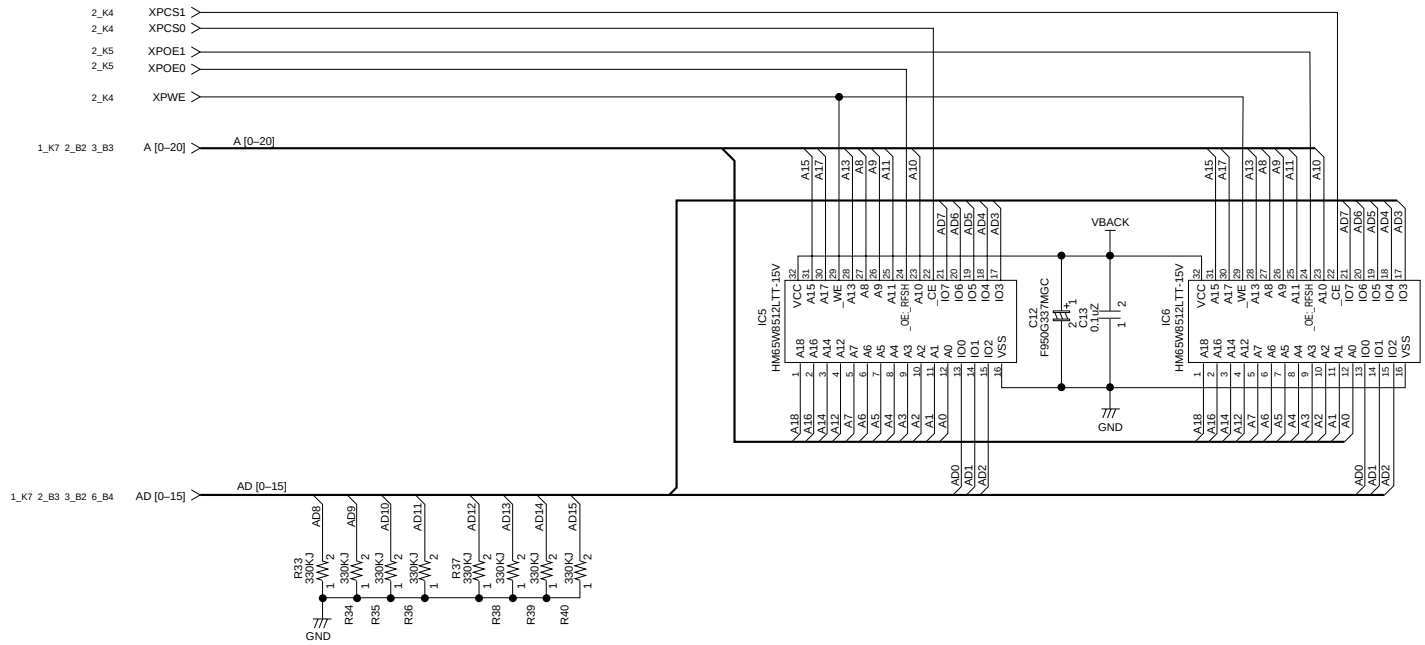
| Description : | Board No : | Drawing No : |
|---|---|---|
| CPU | P693-MAIN (1/9) | C240590 |



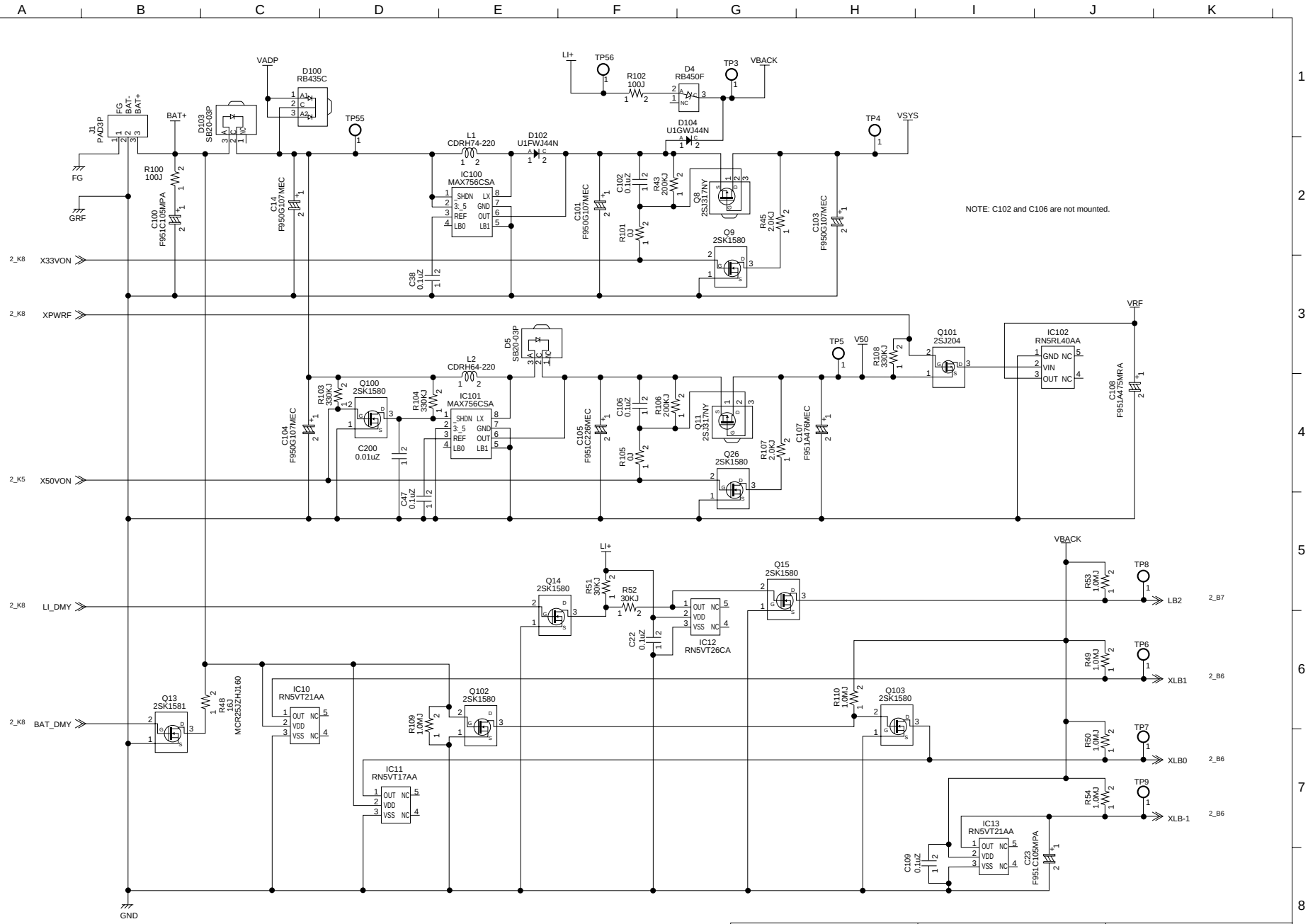

| Description : | Board No : | Drawing No : |
|---|---|---|
| GA | P693-MAIN (2/9) | C240591 |



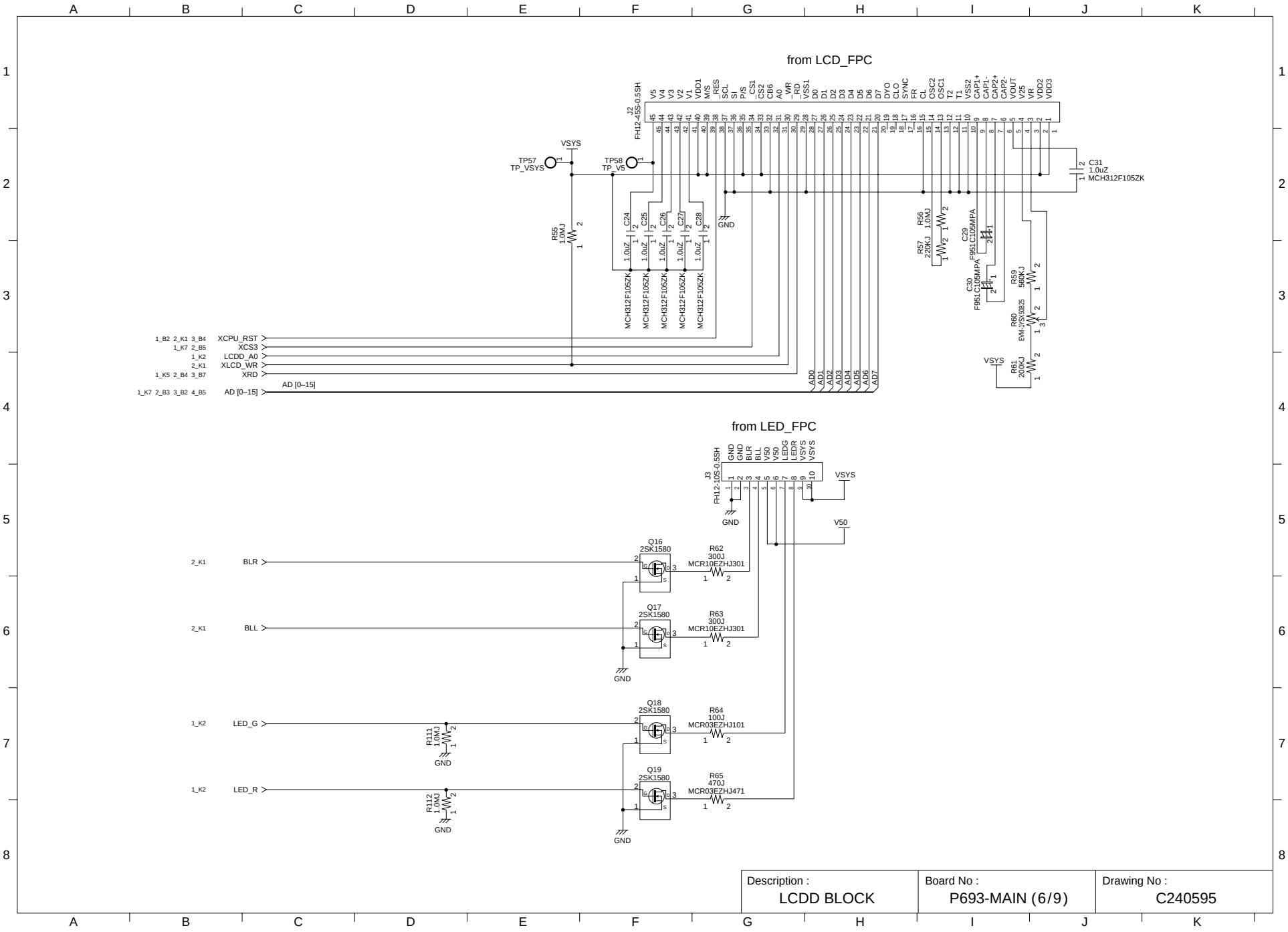

| Description : | Board No : | Drawing No : |
|---|---|---|
| FROM/MROM | P693-MAIN (3/9) | C240592 |



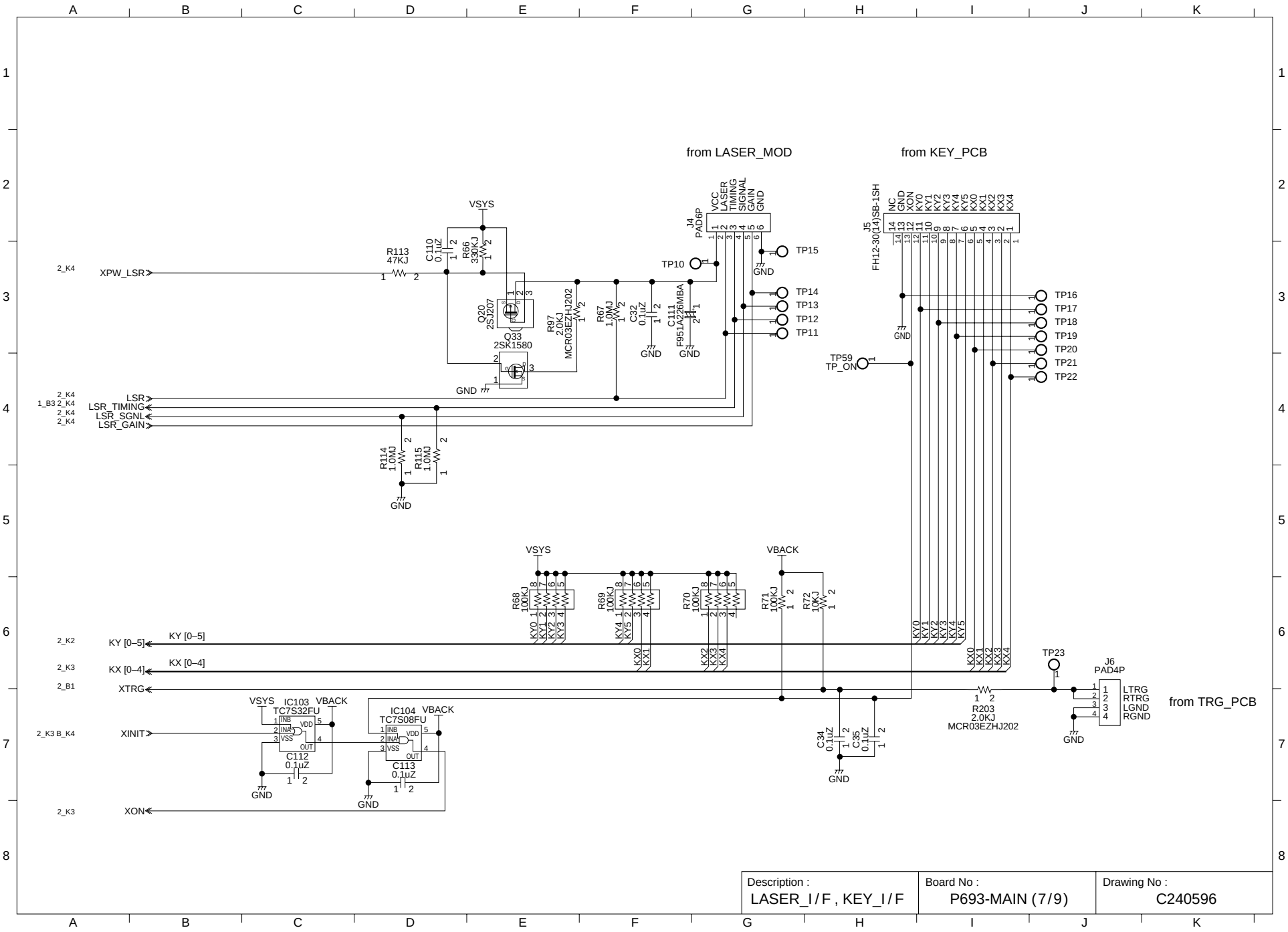

| Description : | Board No : | Drawing No : |
|---|---|---|
| PS_RAM | P693-MAIN (4/9) | C240593 |



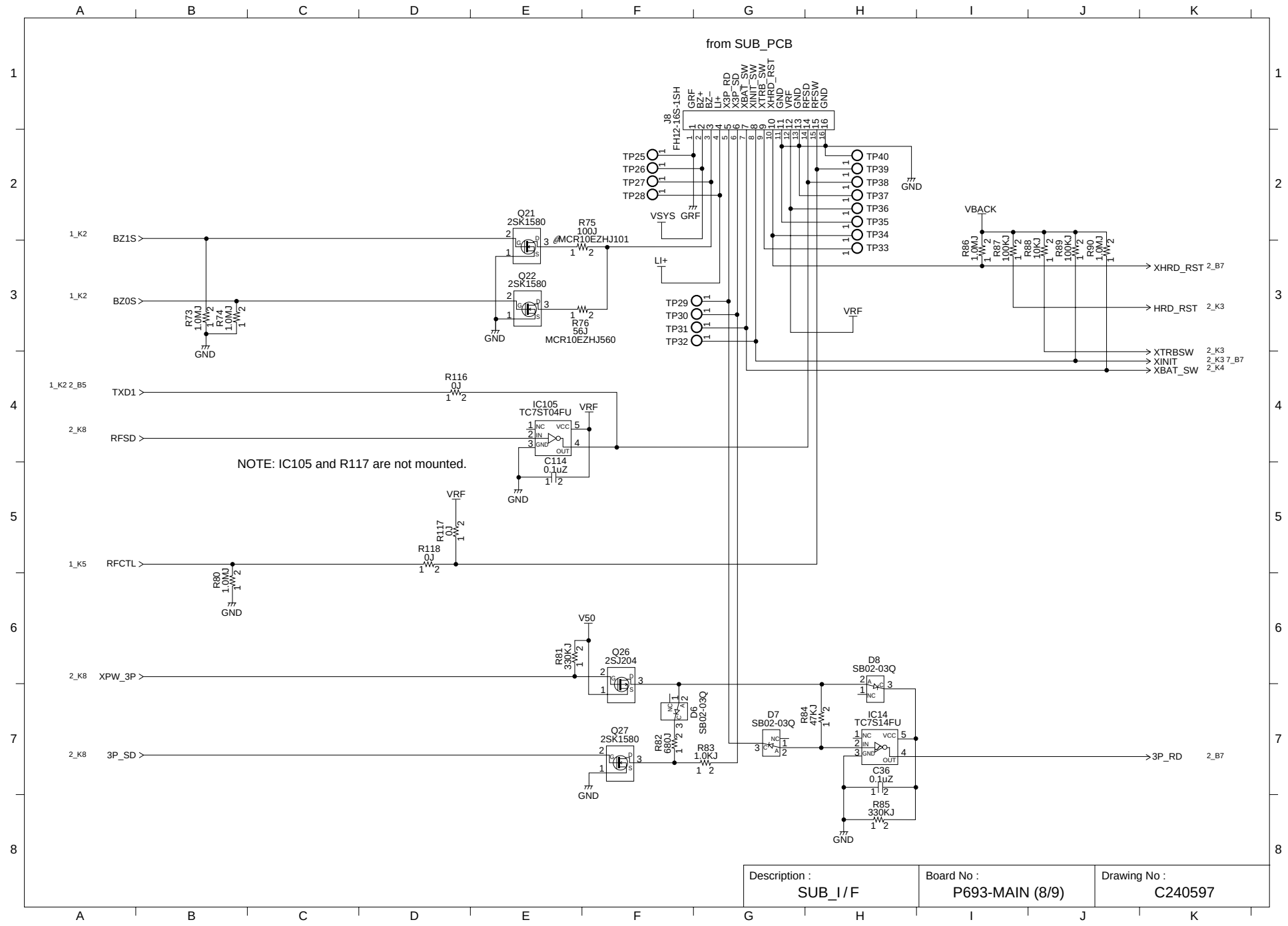

| Description : | Board No : | Drawing No : |
|---|---|---|
| POWER I/F | P693-MAIN (5/9) | C240594 |

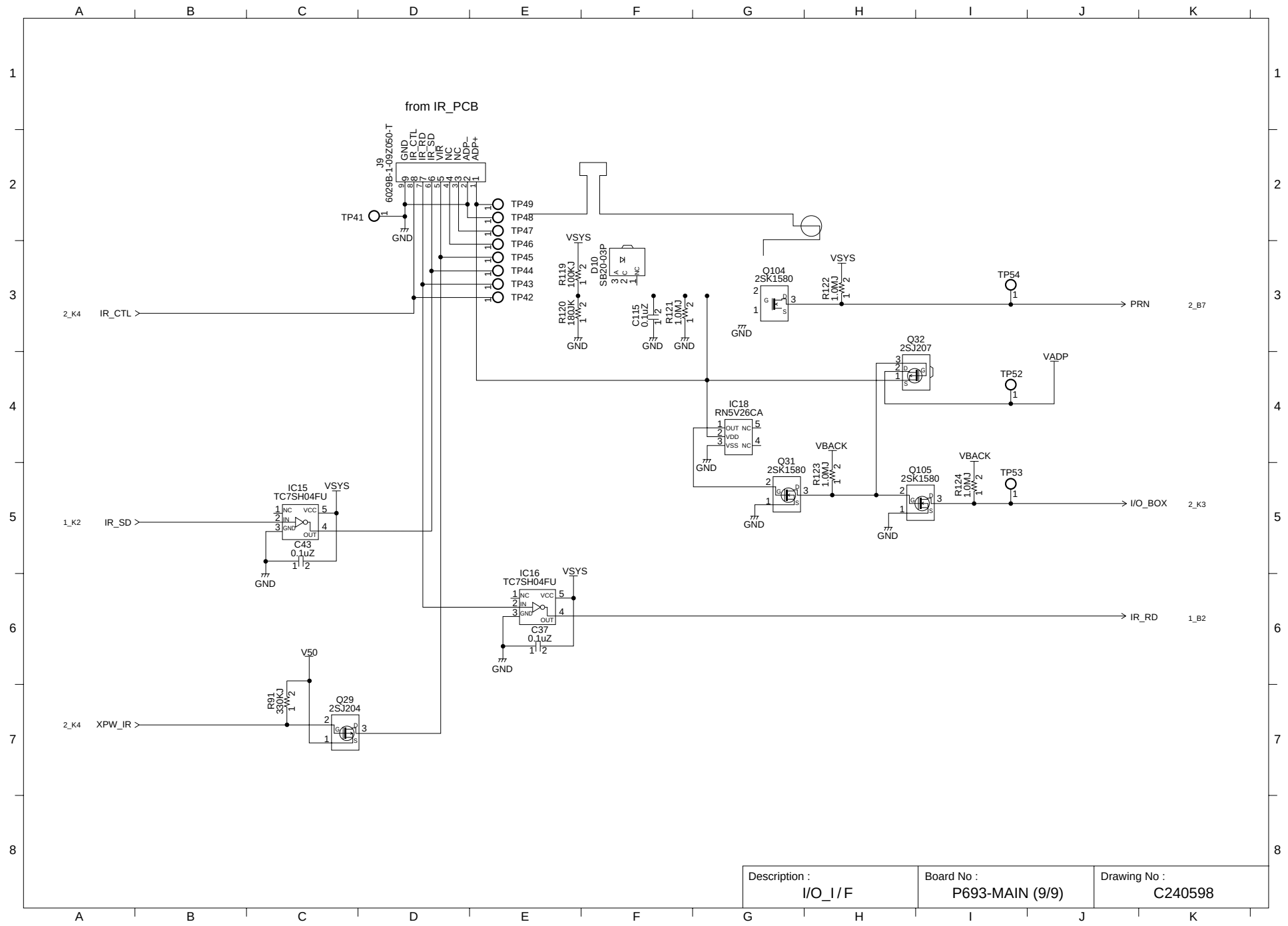



| Description : | Board No : | Drawing No : |
|---|---|---|
| LCDD BLOCK | P693-MAIN (6/9) | C240595 |

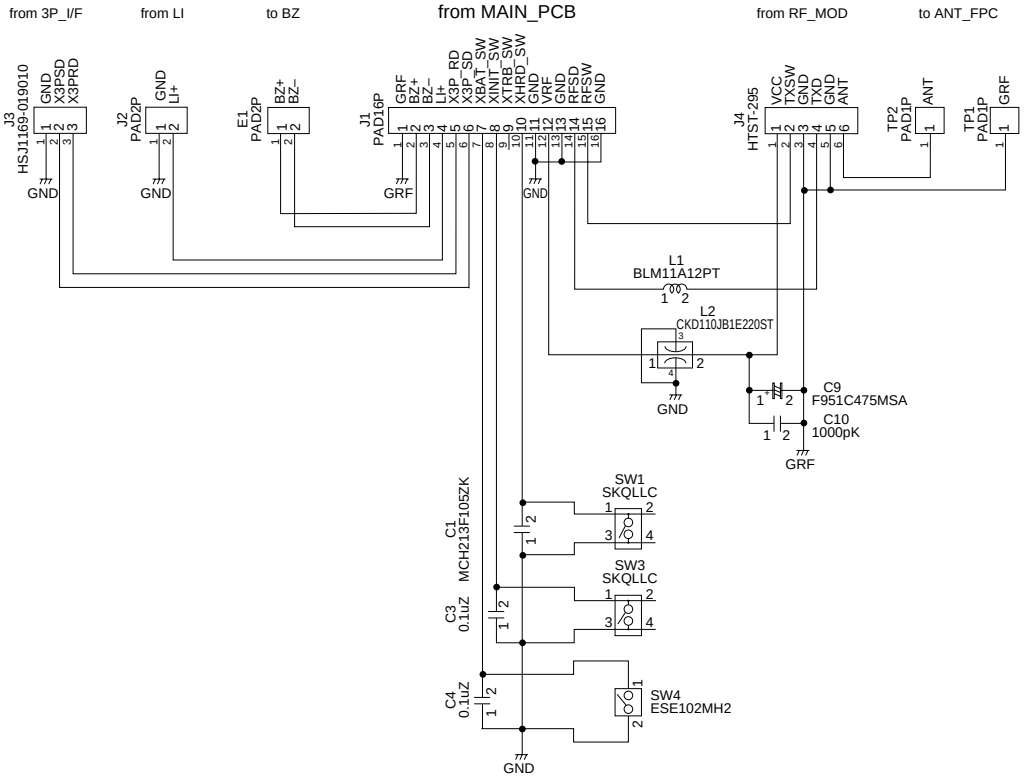



| Description : | Board No : | Drawing No : |
|---|---|---|
| LASER_I/F , KEY_I/F | P693-MAIN (7/9) | C240596 |

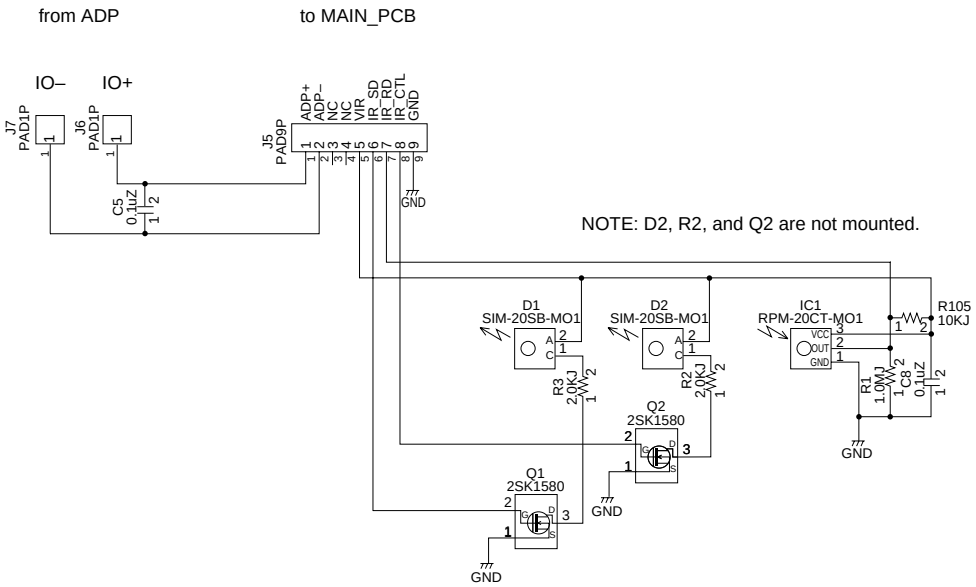

from SUB_PCB
J8
FH12-16S-1SH
GRF
BZ+
BZ−
LI+
X3P_RD
X3P_SD
XBAT_SW
XINIT_SW
XTRB_SW
XHRD_RST
GND
VRF
GND
RFSD
RFSW
GND
TP25
TP26
TP27
TP28
TP40
TP39
TP38
TP37
TP36
TP35
TP34
TP33
VSYS
GRF
LI+
TP29
TP30
TP31
TP32
VRF
VBACK
R86 1.0MJ
R87 100KJ
R88 10KJ
R89 100KJ
R90 1.0MJ
XHRD_RST 2_B7
HRD_RST 2_K3
XTRBSW 2_K3
XINIT 2_K3 7_B7
XBAT_SW 2_K4
1_K2
BZ1S
BZ0S
Q21 2SK1580
Q22 2SK1580
R75 100J MCR10EZHJ101
R76 56J MCR10EZHJ560
R73 1.0MJ
R74 1.0MJ
GND
1_K2 2_B5
TXD1
R116 0J
2_K8
RFSD
IC105 TC7ST04FU
C114 0.1uZ
NOTE: IC105 and R117 are not mounted.
VRF
R117 0J
R118 0J
1_K5
RFCTL
R80 1.0MJ
V50
2_K8
XPW_3P
R81 330KJ
Q26 2SJ204
D6 SB02-03Q
D8 SB02-03Q
D7 SB02-03Q
R84 47KJ
IC14 TC7S14FU
2_K8
3P_SD
Q27 2SK1580
R82 680J
R83 1.0KJ
C36 0.1uZ
R85 330KJ
3P_RD 2_B7
Description :
SUB_I / F
Board No :
P693-MAIN (8/9)
Drawing No :
C240597



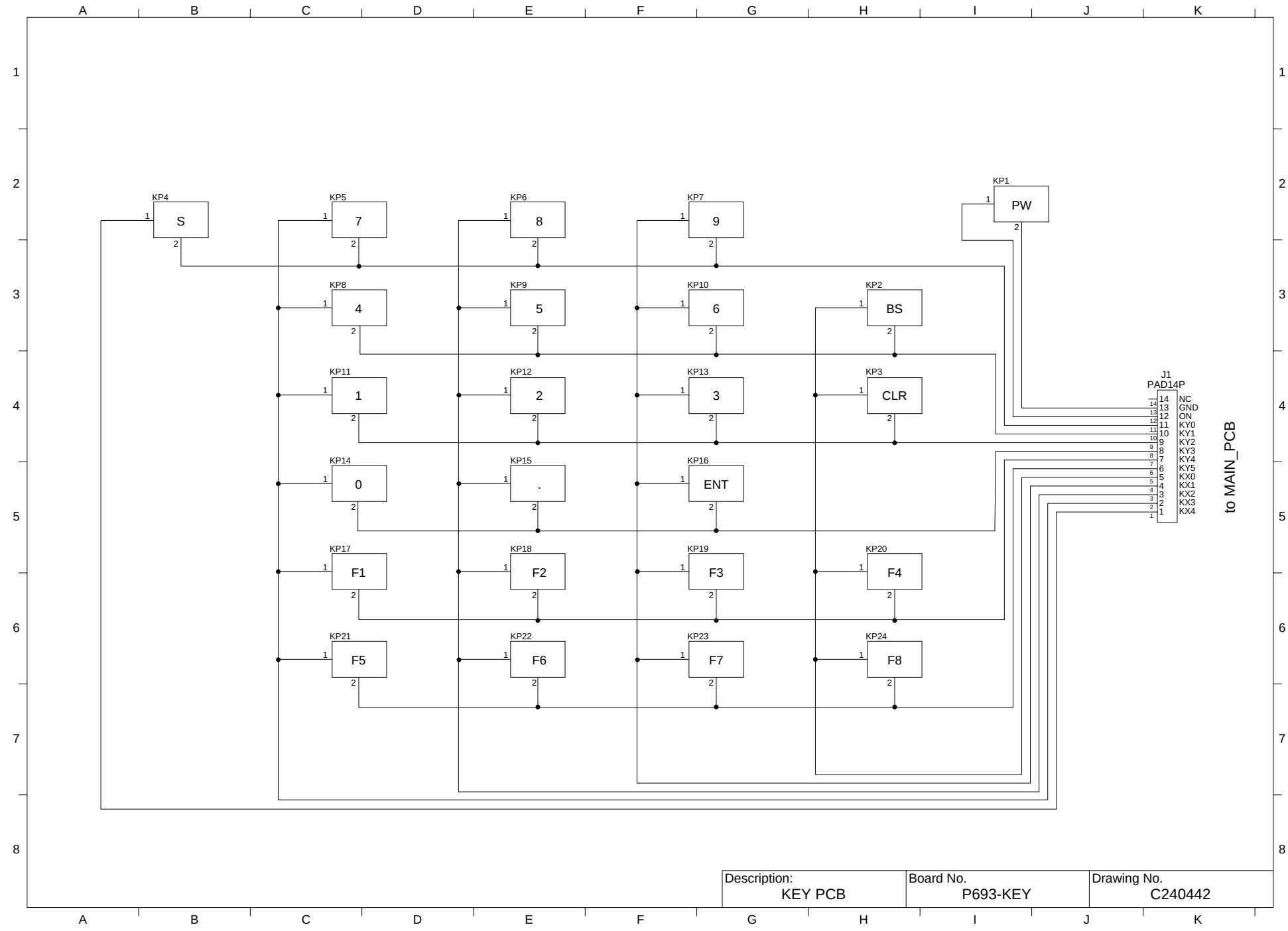

| Description : | Board No : | Drawing No : |
|---|---|---|
| I/O_I / F | P693-MAIN (9/9) | C240598 |




| Description : | Board No : | Drawing No : |
|---|---|---|
| 3P_I / F, SW, LI, ANT | P693-SUB | C240599 |



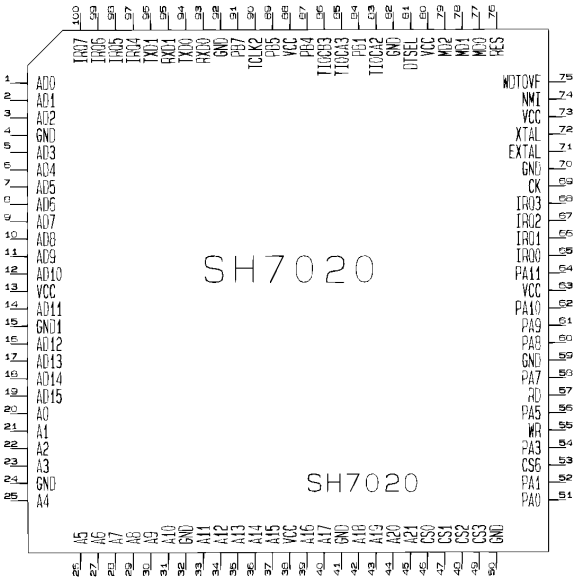

| Description : | Board No : | Drawing No : |
|---|---|---|
| I/R_I/F | P693-IR | C240440 |



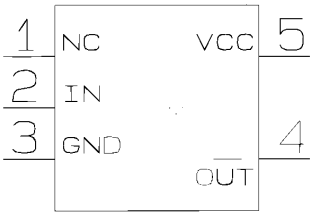

| Description: | Board No. | Drawing No. |
|---|---|---|
| KEY PCB | P693-KEY | C240442 |

## *11. IC data*

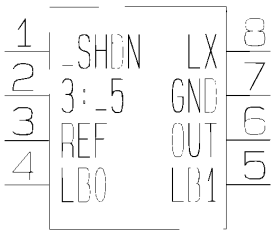
1) SH7020



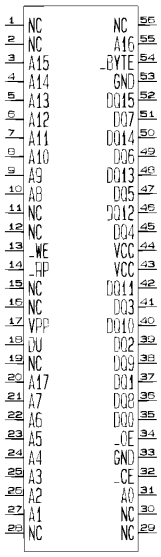

2) 7S04



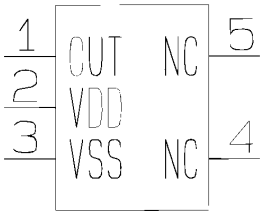

3) MAX756



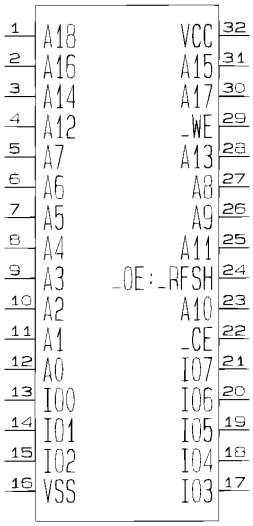

4) E28F200BL



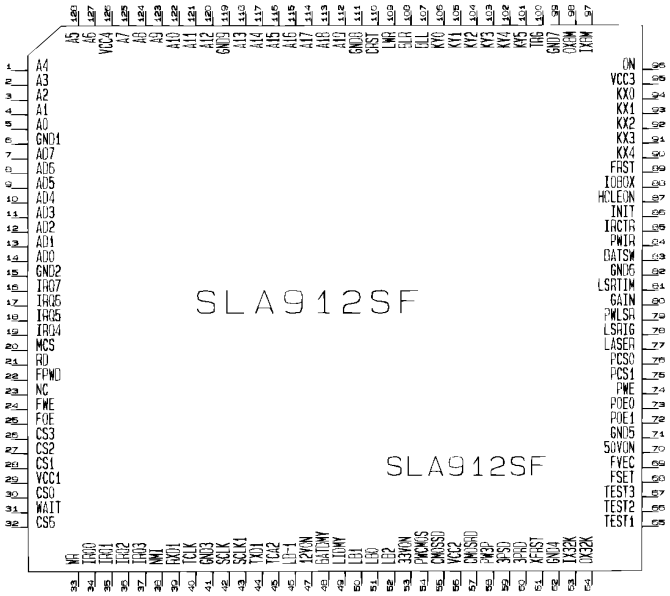

5) RN5VT



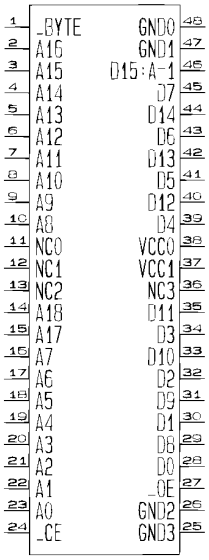

6) HM65W8512



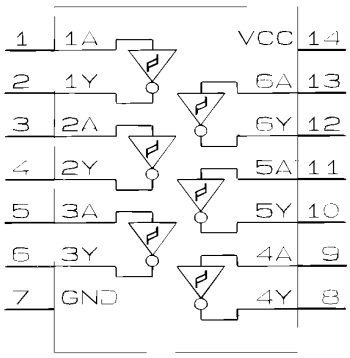
7) SLA912SF




8) MB838200




9) HC14



## *12. Parts list*


page

Upper case assy ····· 52
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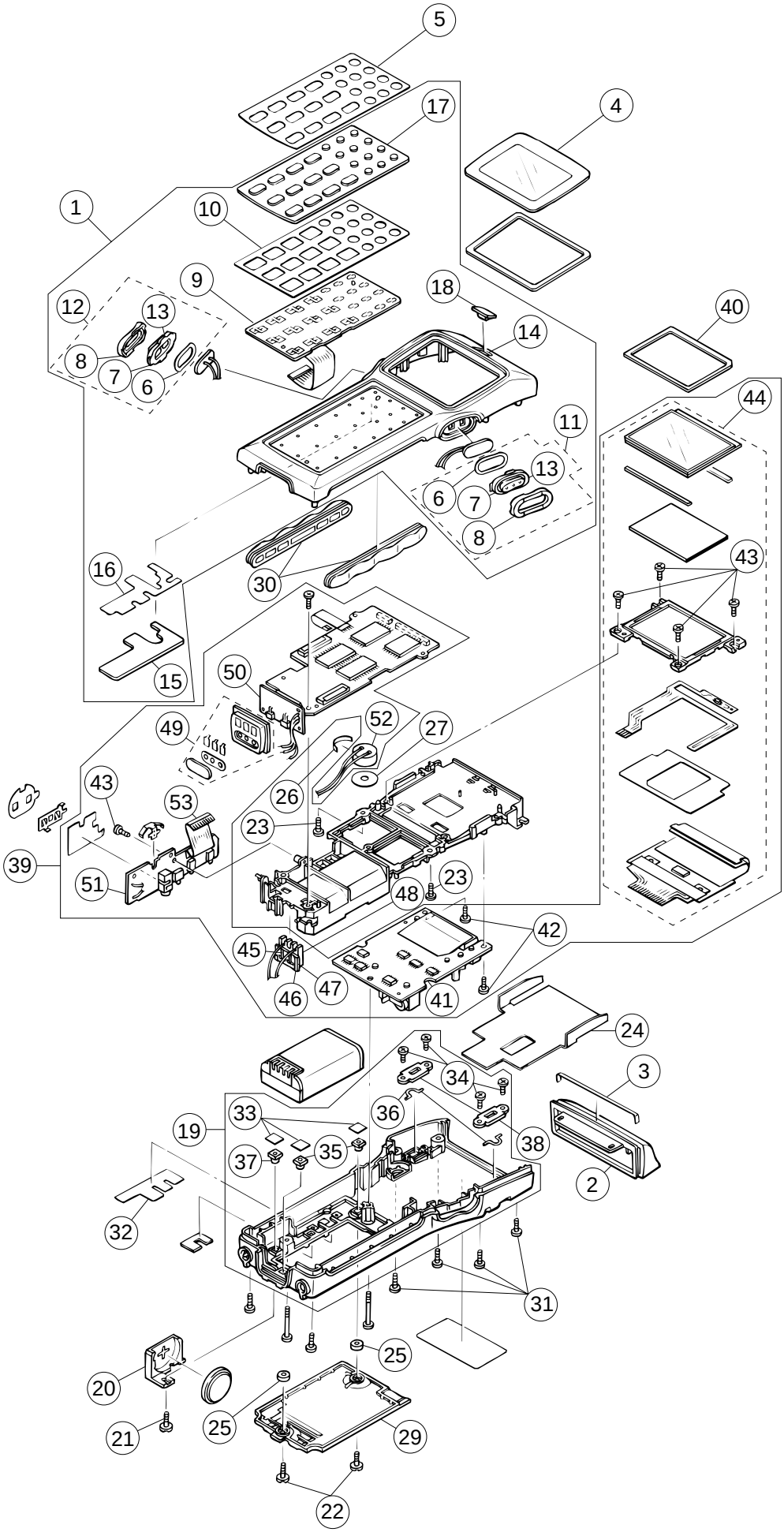
IR assy ····· 52
P799-SUB assy ····· 53
P693-MAIN assy ····· 53


**Note:**

1. Price and specifications are subject to change without notice.
2. As for order/supply of parts, refer to the "Guide book for spare parts supply" a separate publication.
3. The numbers in the item column correspond to the same numbers in exploded drawing.
4. Marks:
   - Q: Quantity used per unit
   - R: Rank
     - A: Essential
     - B: Stock recommended
     - C: Less recommended
     - X: No stock recommended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**DT-750**

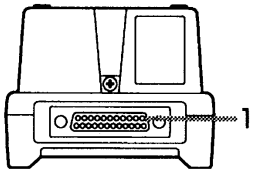
| Item | Code No. | Parts Name | Specification | Version | Q | R |
|---|---|---|---|---|---|---|
| | **Upper case ass'y** | | | | | |
| 1 | 6541 7551 | Upper case ass'y | C341251*1 | | 1 | A |
| 2 | 6513 9392 | Nose cap sub ass'y P698AA | C340389C*2 | | 1 | B |
| 3 | 6513 2280 | W tape NS-P690 | C440422-1 | | 1 | B |
| 4 | 6513 7341 | Display plate P698AA | C440463-2 | | 1 | C |
| 5 | 6513 7299 | Guidance plate P698AA | C340344A-2 | | 1 | A |
| 6 | 6513 8594 | W tape SV-P693AA | C441374-1 | | 2 | C |
| 7 | 6512 6603 | Trigger key SV2-P799 | C341173-2 | | 2 | C |
| 8 | 6512 6604 | Trigger key cover 2-P799 | C341174-2 | | 2 | C |
| 9 | 6541 3279 | P693-KEY ass'y | C340394*1 | | 1 | C |
| 10 | 6513 9399 | W tape RK-P693AA | C340345A-1 | | 1 | C |
| 11 | 6541 3286 | P693-TRG ass'y R | C440579*1 | | 1 | A |
| 12 | 6541 3293 | P693-TRG ass'y L | C440578*1 | | 1 | A |
| 13 | 6513 2952 | W tape TP-P693AA | C440454-1 | | 2 | C |
| 14 | 6513 2406 | W tape LE-P690 | C440119B-1 | | 1 | C |
| 15 | 6513 5570 | Spacer FL-P693AA | C440931-1 | | 1 | X |
| 16 | 6513 5577 | W tape FL-P693AA | C440937-1 | | 1 | X |
| 17 | 6513 7264 | Rubber key B-P698AA | C140257-2 | | 1 | A |
| 18 | 6513 7474 | Lens LED-B-P693AA | C340119B-2 | | 1 | C |
| | **Lower case ass'y** | | | | | |
| 19 | 6541 5687 | Lower case ass'y | C340391*2 | | 1 | A |
| 20 | 6513 8279 | Battery holder P693AA | C340319A-1 | | 1 | C |
| 21 | 6511 2090 | Decorative screw B-L539BA | C411820-4 | | 1 | C |
| 22 | 6513 1573 | Screw LZ-A-P690 | C440142-1 | | 2 | C |
| 23 | 6331 6670 | Flathead screw A-G324 | A33953-3 | | 2 | C |
| 24 | 6514 0015 | Cover antenna2-P693AA | C440792D-1 | | 1 | X |
| 25 | 6513 4961 | Cushion C-P693AA | C440838-1 | | 2 | C |
| 26 | 6513 5066 | W tape BZB-P693AA | C440860-1 | | 1 | C |
| 27 | 6513 9644 | W tape BZA-P693AA | C440859A-1 | | 1 | C |
| 29 | 6512 6602 | Battery cover P799 | C240890-1 | | 1 | C |
| 30 | 6513 9364 | Side case P698AA | C340328A-2 | | 2 | C |
| 31 | 6328 9130 | Flathead screw A-G257 | A44793-7 | | 6 | C |
| 32 | 6514 0269 | Switch blind P799 | C441979-1 | | 1 | C |
| 33 | 6512 4660 | Nut holder L960MA | C412282-2 | | 3 | X |
| 34 | 6328 3830 | Flathead screw A-G403 | A44793-5 | | 4 | C |
| 35 | 6393 8540 | Nut V545 | A411563-1 | | 2 | C |
| 36 | 6513 4688 | Shaft B-P693AA | C440784-1 | | 2 | C |
| 37 | 6513 4513 | Nut B-P690 | C440716-1 | | 1 | C |
| 38 | 6513 8307 | Strap holder P698AA | C340322A-2 | | 2 | C |
| | **Inner case ass'y** | | | | | |
| 39 | 6541 7553 | Inner case ass'y | C240866*1 | | 1 | A |
| 40 | 6513 2343 | Blind tape P690 | C440111A-1 | | 1 | C |
| 41 | 2725 1029 | Laser module | VLM-1600 | | 1 | A |
| 42 | 6328 9130 | Flat head screw A-G257 | A44793-7 | | 2 | C |
| 43 | 6328 3830 | Flathead screw A-G403 | A44793-5 | | 6 | C |
| 44 | 6541 4840 | LCD ass'y | C240143*2 | | 1 | A |
| 45 | 3502 2240 | Connector | 3900108-00 | | 1 | C |
| 46 | 6514 0130 | Terminal holder P799 | C341285-1 | | 1 | C |
| 47 | 6514 0211 | W tape BAT-P799 | C441902-1 | | 1 | C |
| | 6514 0268 | Spacer P799 | C442009-1 | | 1 | C |
| | **IR ass'y** | | | | | |
| 49 | 6541 7552 | IR ass'y | C341252*1 | | 1 | A |

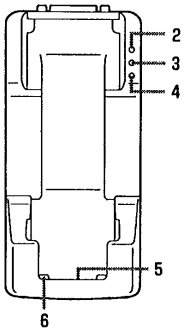
| Item | Code No. | Parts Name | Specification | Version | Q | R |
|---|---|---|---|---|---|---|
| 50 | 6540 0012 | P799-IR ass'y | C341249*1 | | 1 | A |
| | | IR filter P693AA | C440462-1 | | 1 | |
| | | W tape FT-P693AA | C440455-1 | | 1 | |
| | | IR holder P799 | C341263-1 | | 1 | |
| | | Recharge terminal P799 | C441742-1 | | 3 | |
| | | W tape JT | C441743-1 | | 3 | |
| | | Photo sensor | RPM-20CT-M01 | | 1 | |
| | | LED | SIM-20SB-M01 | | 1 | |
| | | W tape A-P650 | C413474-1 | | 1 | |
| | | Chip transistor | 2SK1580-T1B | | 3 | |
| | | Chip transistor | MTSF2P02HDR2 | | 1 | |
| | | Schottky barrier diode | U1FWJ44N-TE12L | | 1 | |
| | | Chip resistor | MCR01MZSJ202 | | 1 | |
| | | Chip resistor | MCR01MZSJ103-* | | 2 | |
| | | Chip capacitor | MCH182F104ZK | | 3 | |
| | | Chip resistor | MCR01MZSJ105 | | 1 | |
| | | Chip resistor | MCR01MZSJ334 | | 2 | |
| | **P799-SUB ass'y** | | | | | |
| 51 | 6540 0011 | P799-SUB ass'y | C240864*1 | | 1 | A |
| 52 | 3122 3185 | Buzzer | CB-12HN(KAI) | | 1 | B |
| 53 | 6513 4408 | FFC joiner B-P693AA | C440740-1 | | 1 | A |
| | | Battery spring K-P693AA | C340325-1 | | 1 | |
| | | Battery spring B-P693AA | C340332-1 | | 1 | |
| | | Battery insulator P693AA | C440461-1 | | 1 | |
| | | LB tape P693AA | C440458A-1 | | 1 | |
| C1 | | Chip capacitor | MCH213F105ZK | | 1 | |
| C3 | | Chip capacitor | MCH182F104ZK | | 1 | |
| C4 | | Chip resistor | MCR03EZHJ000 | | 1 | |
| J3 | | Mini jack | HSJ1169-019010 | | 1 | |
| SW1, 3 | | Tact switch | SKQLLC-T3000 | | 2 | |
| | **P693-MAIN ass'y** | | | | | |
| 54 | 6541 6856 | P693-MAIN ass'y | C140163*2 M | | 1 | A |
| IC1 | 2011 9779 | LSI | HD6437020U01X | | 1 | C |
| IC2 | 2012 1211 | LSI | SLA912SF3Y | | 1 | C |
| IC3 | 2012 2723 | LSI | TE28F400CV-B80 | | 1 | C |
| IC4 | 2012 1204 | LSI | MB838200BLPFTN-55B | | 1 | C |
| IC5, 6 | 2011 9786 | LSI | HM65W8512LTT-15V | | 2 | C |
| IC10, 13 | 2105 3661 | MOS-IC (3K) | RN5VT21AA-TR | | 2 | C |
| IC11 | 2105 4011 | CMOS IC | RN5VT17AA-TR | | 1 | C |
| IC12,18 | 2105 3668 | MOS-IC | RN5VT26CA-TR | | 2 | C |
| IC14 | 2105 3381 | CMOS-IC | TC7S14FU-TE85L | | 1 | C |
| IC15, 16 | 2105 3696 | CMOS-IC | TC7SH04FU-TE85L | | 2 | C |
| IC100, 101 | 2105 3997 | CMOS-IC | MAX756CSA | | 2 | C |
| IC102 | 2105 4557 | MOS-IC | RN5RL40AA-TR | | 1 | C |
| IC103 | 7720 0707 | IC | TC7S32FU-TE85L | | 1 | C |
| IC104 | 2105 3521 | CMOS-IC(3K) | TC7S08FU-TE85L | | 1 | C |
| X1 | 2590 2310 | Crystal oscillator | MC-306-32.768-7.0P | | 1 | C |
| X2 | 2590 1939 | Ceramic oscillator | PBRC9.83BR | | 1 | C |
| J2 | 3501 9247 | Connector | FH12-45S-0.5SH | | 1 | B |
| J3 | 3501 9240 | Connector | FH12-10S-0.5SH | | 1 | B |
| J5 | 3501 9492 | Connector | FH12-30(14)SB-1SH | | 1 | B |
| J8 | 3501 9849 | Connector 16P | FH12-16S-1SH | | 1 | B |

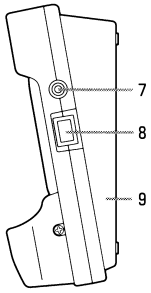
| Item | Code No. | Parts Name | Specification | Version | Q | R |
|---|---|---|---|---|---|---|
| | | Chip transistor | 2SK1580-T1B | | 19 | |
| Q1, 20, 32 | | Chip transistor | 2SJ207-T1B | | 3 | |
| Q8,11 | | Chip transistor | 2SJ317NY-TR | | 2 | |
| Q13 | | FET | 2SK1581-T1B | | 1 | |
| Q26, 29, 101 | | Chip transistor | 2SJ204-T1B | | 3 | |
| | | Chip schottky diode | RB450F-T106 | | 1 | |
| D5, 10, 103 | | Schottky barrier diode | SB20-03P-TC | | 3 | |
| D6, 7, 8 | | Schottky barrier diode | SB02-03Q-TR | | 3 | |
| D100 | | Chip diode | RB435C-T1000 | | 1 | |
| D102 | | Schottky barrier diode | U1FWJ44N-TE12L | | 1 | |
| R17, 41, 63, 106 | | Chip resistor | MCR01MZSJ204 | | 4 | |
| D104 | | Schottky barrier diode | U1GWJ44N-TE12L | | 1 | |
| R18 | | Chip resistor | MCR03EZHJ106 | | 1 | |
| R19 | | Chip resistor | MCR03EZHJ391 | | 1 | |
| R20 | | Chip resistor | MCR03EZHJ105 | | 1 | |
| R45, 107, 201, 202 | | Chip resistor | MCR01MZSJ202 | | 4 | |
| R48 | | Chip resistor | MCR25JZHJ160 | | 1 | |
| R51, 52 | | Chip resistor | MCR01MZSJ303 | | 2 | |
| R57 | | Chip resistor | MCR01MZSJ224 | | 1 | |
| R59 | | Chip resistor | MCR01MZSJ564 | | 1 | |
| R60 | | Chip variable resistor | EVM-1YSX50B25 | | 1 | |
| R62, 63 | | Chip resistor | MCR10EZHJ301 | | 2 | |
| R64 | | Chip resistor | MCR03EZHJ101 | | 1 | |
| R65 | | Chip resistor | MCR03EZHJ471 | | 1 | |
| R68, 69, 70 | | Chip network resistor | MNR14EOAJ104 | | 3 | |
| R75 | | Chip resistor | MCR10EZHJ101 | | 1 | |
| R76 | | Chip resistor | MCR10EZHJ560 | | 1 | |
| R82 | | Chip resistor | MCR01MZSJ681 | | 1 | |
| R83 | | Chip resistor | MCR01MZSJ102 | | 1 | |
| R84, 113 | | Chip resistor | MCR01MZSJ473-* | | 2 | |
| R87, 89, 119, 200 | | Chip resistor | MCR01MZSJ104 | | 5 | |
| R88 | | Chip resistor | MCR01MZSJ103-* | | 2 | |
| R97, 203 | | Chip resistor | MCR03EZHJ202 | | 2 | |
| R100, 102 | | Chip resistor | MCR01MZSJ101 | | 2 | |
| R101, 105, 116, 118 | | Chip resistor | MCR01MZSJ000-* | | 4 | |
| R120 | | Chip resistor | MCR01MZSJ184 | | 1 | |
| | | Chip resistor | MCR01MZSJ105 | | 35 | |
| | | Chip resistor | MCR01MZSJ334 | | 20 | |
| C4 | | Chip capacitor | MCH215A050DK | | 1 | |
| C5 | | Chip capacitor | MCH215A080DK | | 1 | |
| C12 | | Chip tantalum capacitor | F950G337MGC | | 1 | |
| C23, 29, 30, 100 | | Chip tantalum capacitor | F951C105MPAAQ2 | | 4 | |
| C24, 28, 31 | | Chip capacitor | MCH312F105ZK | | 6 | |
| C105 | | Chip tantalum capacitor | F951C226MECAQ2 | | 1 | |
| C107 | | Chip tantalum capacitor | F951A476MECAQ2 | | 1 | |
| C108 | | Tantalum capcitor | F951A475MRAAQ2 | | 1 | |
| C108 | | Tantalum capacitor | F951A475MQAAQ2 | | 1 | |
| C111 | | Tantalum capacitor | F951A226MBAAQ2 | | 1 | |
| C200 | | Chip ceramic capacitor | MCH182F103ZK | | 1 | |
| | | Chip capacitor | MCH182F104ZK | | 22 | |
| | | Chip tantalum capacitor | F950G107MECAQ2 | | 4 | |
| L1 | | Choke coil | CDRH74-220MC | | 1 | |
| L2 | | Choke coil | CDRH64-220 | | 1 | |

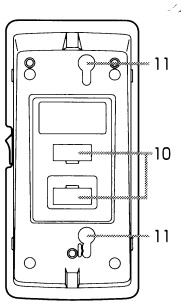
# DT-766 IO Box (PX-935)

### *1. Each part name and a work*

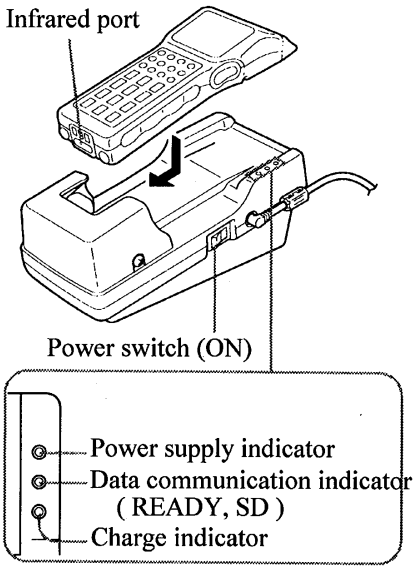



1. RS-232C connector
2. Power supply indicator
3. Data communication indicator
4. Charge indicator
5. Infrared port
6. Mounting switch
7. AC adapter jack
8. Power switch
9. Base
10. DIP switches
11. Wall mounting hole



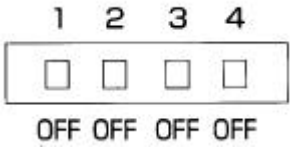
## *2. Specification*

### 2-1. Hardware

| Category | item | Specifications |
|---|---|---|
| Infrared Rays | Synchronous<br>Speed | SS (Start-stop)<br>1,200 ~ 19,200 bps |
| RS-232C | Synchronous<br>Speed<br>Data communication | SS (Start-stop)<br>1,200 ~ 19,200 bps<br>Full (Only Infrared Rays) / Half duplex |
| Charger | Recharge time | 8 ~ 10 hours |
| Power | Output | DC9V, 600mA |

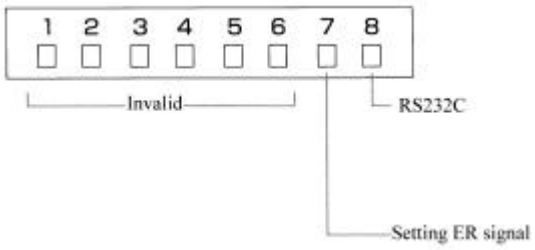
### 2-2. Dip Switch Setting

2-2-1. SW1




Dip Switch 1 to 4 set “OFF” position entirely.

2-2-2. SW2




1) Setting “ER” signal

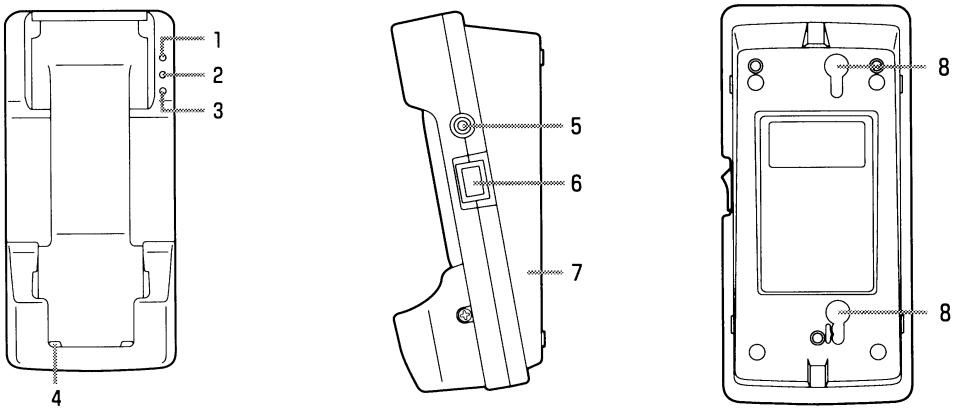
| Dip Switch | 7 |
|---|---|
| OFF | Always ON mode |
| ON | In mounting Handy terminal: ON<br>Not mounting Handy terminal: OFF |

2) Setting “RS” signal

| Dip Switch | 8 |
|---|---|
| OFF | Always ON mode |
| ON | In mounting Handy terminal: ON<br>Not mounting Handy terminal: OFF |

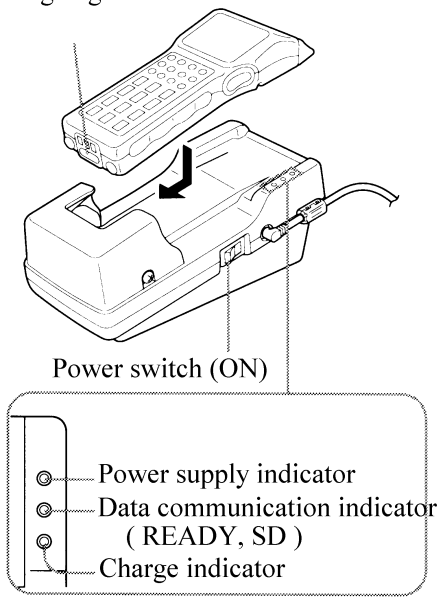
# DT-769 CHG

## *1. Each part name and a work*




1. Power supply indicator
2. Ready indicator
3. Charge indicator
4. Mounting Switch
5. AC Adapter jack
6. Power switch
7. Base
8. Wall mounting hole

Chargeing connection

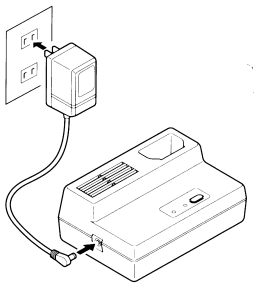


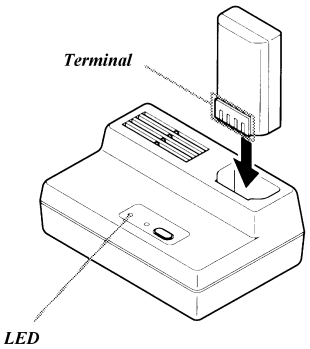

## *2. Specification*

| Category | item | Specifications |
|---|---|---|
| Charger | Recharge time | 8 ~ 10 hours |
| Power | Output | DC9V, 600mA |

# DT-720 CHG

### *1. Each part name and a work*






### *2. Specification*

| Category | item | Specifications |
|---|---|---|
| Charger | Recharge time | 1.5 hours |
| Power | Output | DC9.5V, 1A |

## *3. Parts list*


page

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P935-MAIN assy ····· 61
P935-LED assy ····· 62
IR assy ····· 62
Switch assy ····· 63


**Note:**

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2. As for order/supply of parts, refer to the Guide book for spare parts supply" a separate publication.
3. The numbers in the item column correspond to the same numbers in exploded drawing.
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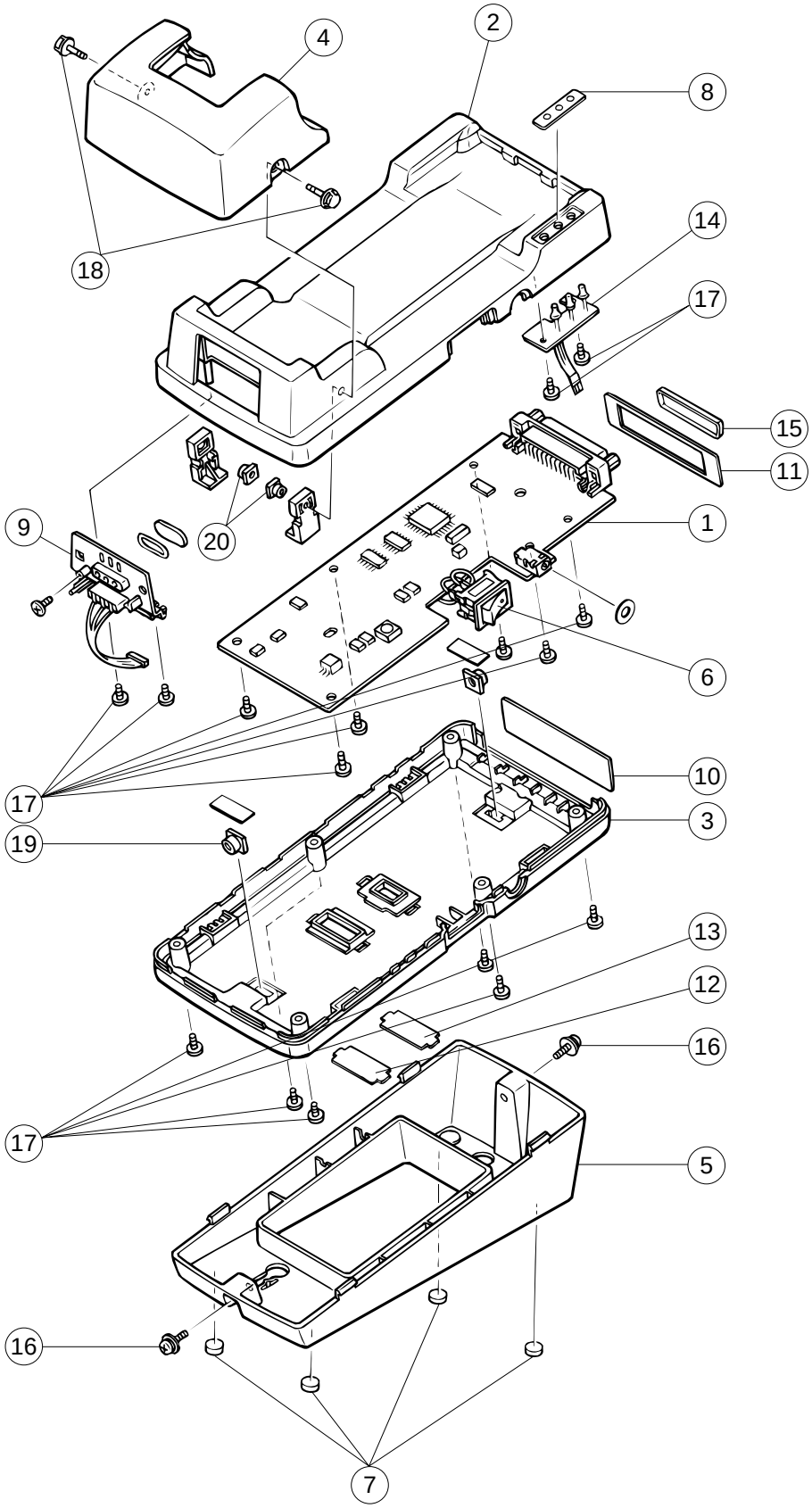
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**DT-766 I/O**

| Item | Code No. | Parts Name | Specification | Version | Q | | R |
|---|---|---|---|---|---|---|---|
| | | | | | DT766 I/O Box | Charger | |
| | **Case block** | | | | | | |
| 2 | 6512 6615 | Upper case P935 | C140447-1 | | 1 | 1 | C |
| 3 | 6513 5829 | Lower case P905 | C140024A-1 | | 1 | 1 | C |
| 7 | 6335 7780 | Rubber foot G187 | A4911-3 | | 4 | 4 | X |
| | 6513 1293 | Nut holder P905 | C340120-1 | | 2 | 2 | X |
| 20 | 6512 9020 | Insert nut P650 | C413505-1 | | 4 | 4 | X |
| 19 | 6512 8780 | Nut supporter P650 | C413397-1 | | 2 | 2 | X |
| | 6513 2308 | Nut supporter P905 | C440130A-1 | | 2 | 2 | X |
| | 6513 1342 | Blind plate C-P905 | C440129-1 | | 2 | 0 | C |
| 16 | 5860 9807 | Screw with washer | 3X8 NI | | 2 | 2 | X |
| 17 | 6333 3000 | Flathead screwA-G232 | A33953-7 | | 16 | 16 | X |
| 5 | 6513 1272 | Hanger unit P905 | C140025-1 | | 1 | 1 | C |
| 8 | 6512 6619 | Panel LEDL-P935 | C441745-1 | | 1 | 0 | C |
| 8 | 6514 0039 | Panel LEDL2-P935 | C441745-2 | | 0 | 1 | C |
| 10 | 6513 9455 | Plate CN-P920 | C441433-1 | | 1 | 0 | C |
| 11 | 6514 0135 | Connector blind | C441810-1 | | 0 | 1 | X |
| 12 | 6513 1377 | Blind plate D-P905 | C440148-1 | | 0 | 1 | X |
| 15 | 5860 9030 | Connector dust cover | P-25P-23 | | 1 | 0 | C |
| 13 | 6514 0134 | DIP blind DIP-P935 | C441811-1 | | 0 | 1 | X |
| 4 | 6513 3155 | Cover P914AA | C240207-1 | | 1 | 1 | X |
| | | Rating plate A-P935AE | C441739-3 | | 1 | 0 | X |
| | | Rating plate A-P935EE | C441739-4 | | 0 | 1 | X |
| 18 | 5861 3492 | LH screw | 3X8 NI | | 2 | 2 | C |
| | **P935-MAIN ass'y** | | | | | | |
| 1 | 6541 7663 | P935-MAIN ass'y | C240870*3 | | 1 | 0 | A |
| 1 | 6541 7562 | P935-MAIN ass'y | C240870*2 | | 0 | 1 | A |
| SW2 | 3412 1442 | DIP switch | SSGM14 | | 1 | 0 | C |
| SW3 | 3412 1736 | Switch | SSGM18 | | 1 | 0 | C |
| J5 | 3501 2996 | PCB connector | S3B-PH-K-S | | 1 | 1 | C |
| J1 | 3501 5103 | AC adaptor jack | HEC3110-01-010 | | 1 | 1 | C |
| J4 | 3502 2241 | D sub connector | DBLC-J25SAF-23L9 | | 1 | 0 | C |
| J2 | 3501 8547 | Connector 4P | IL402-4S-E1000 | | 1 | 1 | B |
| J3 | 3501 9422 | Connector 5P | IL402-5S-E1000 | | 1 | 1 | B |
| F1 | 3632 0630 | Chip fuse | KE10 | | 1 | 1 | A |
| | 6513 1321 | Blind plate B-P905 | C440124-1 | | 1 | 1 | C |
| IC2 | 2012 1400 | MOS-IC | RH5VL42AA-T1 | | 1 | 0 | C |
| IC3 | 2012 1568 | LSI | HD6473238F8-914A | | 1 | 0 | C |
| IC6 | 2101 0278 | MOS IC | TC74HC14AF-TP1 | | 1 | 1 | C |
| IC5 | 2101 0693 | MOS IC | TC74HC157AF-TP1 | | 1 | 0 | C |
| IC8 | 2105 1407 | CMOS-IC | TC7S00F-TE85L | | 1 | 1 | C |
| IC4 | 2105 3808 | C-MOS IC | MAX211CAI | | 1 | 0 | C |
| IC1 | 2105 6278 | Linear IC | MC34063BDR2 | | 1 | 1 | C |
| IC10 | 2105 6279 | MOS IC | XC62EP3302MR | | 1 | 0 | C |
| IC9 | 2105 6289 | MOS-IC | XC62EP3502MR | | 1 | 1 | C |
| IC7 | 2112 0518 | Monolithic IC | AN6783S-E1 | | 1 | 1 | C |
| Q5,7 | | Chip transistor | 2SA812-T1B | | 2 | 1 | |
| Q6,8 | | Transistor | 2SA1363T11-1F | | 2 | 1 | |
| Q1-4 | | Chip transistor | 2SJ203-T1B | | 4 | 1 | |
| D3 | | Diode | SB02-03C-TB | | 1 | 1 | |
| D1,4,5 | | Chip diode | 1SR154-400TE25 | | 3 | 2 | |
| D2 | | Schottky barrier diode | U1FWJ44N-TE12L | | 1 | 1 | |
| X1 | | Crystal oscillator | MA406-9.8304MHZ | | 1 | 1 | |
| R51 | | Variable resistor | ST-4TB50K(503) | | 1 | 1 | |
| R35 | | Chip resistor | MCR10EZHJ563 | | 1 | 1 | |
| R42,48 | | Chip resistor | MCR10EZHJ152 | | 2 | 1 | |
| R6-18,26-29,33 | | Chip resistor | MCR10EZHJ103 | | 18 | 1 | |

| Item | Code No. | Parts Name | Specification | Version | Q | | R |
|---|---|---|---|---|---|---|---|
| | | | | | DT766 I/O Box | Charger | |
| R23-25,30-32 | | Chip resistor | MCR10EZHJ334 | | 6 | 4 | |
| R49,50 | | Chip resistor | MCR10EZHJ332 | | 2 | 2 | |
| R22 | | Chip jumper | MCR10EZHJ000 | | 0 | 1 | |
| R19-21,34 | | Chip resistor | MCR10EZHJ181 | | 3 | 3 | |
| R36 | | Chip resistor | MCR10EZHJ823 | | 1 | 1 | |
| R5 | | Chip resistor | MCR10EZHJ105 | | 1 | 1 | |
| R41,47 | | Chip resistor | MCR10EZHJ203 | | 2 | 1 | |
| R4 | | Chip resistor | MCR10EZHF3601 | | 1 | 1 | |
| R3 | | Chip resistor | MCR10EZHF1201 | | 1 | 1 | |
| R1,2 | | Chip resistor | MCR25JZHJR47 | | 2 | 2 | |
| R43 | | Chip resistor | MCR10EZHF11R0 | | 1 | 0 | |
| R38,39,44,45 | | Chip resistor | MCR10EZHF12R0 | | 4 | 2 | |
| R46 | | Chip resistor | MCR10EZHF15R0 | | 1 | 1 | |
| C1,7,9,10,13,14, C20,21,24-26,28 | | Chip capacitor | MCH212F104ZK | | 12 | 7 | |
| C11,12 | | Chip capacitor | MCH215A150JK | | 2 | 0 | |
| C15-19 | | Chip capacitor | MCH312F105ZP | | 5 | 0 | |
| C8 | | Chip capacitor | MCH215C102KK | | 1 | 1 | |
| C2,3 | | Chip tantalum capacitor | F931V156MDC | | 2 | 2 | |
| C23 | | Chip tantalum capacitor | F930J226KBA | | 1 | 1 | |
| C27,29 | | Chip tantalum capacitor | F931A476MCC | | 2 | 1 | |
| C4,5 | | Chip tantalum capacitor | F931C686MDC | | 2 | 2 | |
| C6 | | Chip capacitor | MCH215A680JK | | 1 | 1 | |
| C22 | | Tantalum capacitor | F931A106MAA | | 1 | 1 | |
| L1 | | Common mode filter | M-521C | | 1 | 1 | |
| L3 | | Common mode coil | M-532CT | | 1 | 1 | |
| L2 | | Choke coil | CDRH74-180MC | | 1 | 1 | |
| | | PCB-P935-MAIN | C140463-1 | | 1 | 1 | |
| | **P935-LED ass'y** | | | | | | |
| 14 | 6540 0015 | P935-LED ass'y | C341256*1 | | 1 | 1 | A |
| | 2370 1211 | LED | SLR-342VR3F | | 1 | 1 | C |
| | | LED spacer | LH-5S-9 | | 3 | 3 | |
| | 3122 3010 | LED | SLR-342YW | | 1 | 1 | C |
| | 3122 3504 | LED | SLR-342MG3F | | 1 | 1 | C |
| | | PCB-P935-LED | C441737-1 | | 1 | 1 | |
| | 6513 1370 | FFC joiner B-P905 | C440141-1 | | 1 | 1 | B |
| | | W tape FFC-P905 | C440157-1 | | 1 | 1 | |
| | **IR ass'y** | | | | | | |
| 9 | 6541 7560 | P935-IR ass'y | C341257*1 | | 1 | 0 | A |
| 9 | 6540 0017 | P935-IR ass'y | C341257*2 | | 0 | 1 | A |
| | 3122 2387 | Push switch | SPPB53-V | | 1 | 1 | C |
| | 2370 0994 | LED | SIM-20SB-M01 | | 1 | 0 | C |
| | | W tape A-P650 | C413474-1 | | 1 | 1 | |
| | 6513 1335 | FFC joiner A-P905 | C440127-1 | | 1 | 1 | B |
| | | W tape FFC-P905 | C440157-1 | | 1 | 1 | |
| | | Flathead screw A-G232 | A33953-7 | | 4 | 4 | |
| | | IR holder | C240861-1 | | 1 | 1 | |
| | | W tape FT-P693AA | C440455-1 | | 1 | 1 | |
| | | IR filter P693AA | C440462-1 | | 1 | 1 | |
| | | Protective tape A-P693AA | C441036-1 | | 1 | 1 | |
| | 2259 2002 | Photo sensor | RPM-20CT-M01 | | 1 | 0 | C |
| | **Switch ass'y** | | | | | | |
| 6 | 6541 2320 | SW ass'y | C440151*1 | | 1 | 1 | A |
| | 3412 0602 | Seesaw switch | SF-W101A-01BB | | 1 | 1 | C |
| | | Lead wire A-P905 | C440131A-1 | | 1 | 1 | |
| | | Lead wire B-P905 | C440131A-2 | | 1 | 1 | |